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United States
Department of
Agriculture

Soil
Conservation
Service

Spokane,
Washington

Water Supply Outlook for Washington

as of FEBRUARY 1, 1981 . . .

in cooperation with

Department of Ecology
State of Washington

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TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SNOW SURVEYORS MAKING SPECIAL MEASUREMENTS OF THE SNOWPACK NEAR MT. ST. HELENS VOLCANO, WASHINGTON, APRIL, 1980.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4420 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U. S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W, Calgary, Alberta T3C 1A6.

CAUTION

Irrigators May Face a Water Shortage This Year

SNOW COURSE MEASUREMENTS MADE ON FEBRUARY 1, 1981, INDICATE THAT LOW FLOWS WILL OCCUR IN MANY STREAMS. STUDY THE ATTACHED WATER SUPPLY FORECAST CAREFULLY FOR STREAM FLOW AND/OR RESERVOIR STORAGE FIGURES THAT CONCERN YOUR AREA. KEEP IN TOUCH WITH YOUR IRRIGATION DISTRICT OR OTHER OFFICIALS FOR ESTIMATES OF THE SUPPLY AVAILABLE TO YOU. YOU MAY FIND YOU'LL NEED TO CHANGE CROPS, REDUCE PLANTED ACREAGE, ADJUST TIMING OF WATER APPLICATION, OR IMPROVE EFFICIENCY OF YOUR WATER DISTRIBUTION SYSTEM.

THESE ARE SOME OF THE EARLY DECISIONS AND PLANS YOU MAY HAVE TO MAKE:

CHANGE CROPS	Plant crops which require less water.
REDUCE ACREAGE	Reduce your crop acreage. This will help you make better use of your water as well as reduce the amount of seed and fertilizer you need to buy. Be sure to use cover crops to prevent wind erosion on land you don't irrigate.
CONSIDER ENERGY COSTS	Even if you are able to pump supplemental water, you should compare inflated energy costs with anticipated crop earnings. You may be money ahead to reduce acreage or change crops.
CHECK IRRIGATION SYSTEM	Check your irrigation systems carefully. Make certain that ditches have no water-wasting weeds or debris to slow delivery, sprinkler heads don't have leaks, pipes have tight connections, and pumps work properly. If new parts or equipment are needed, buy them early.
PLANT BEST LAND	Plant only your best land - it makes most efficient use of water. If your soil has been mapped, local Soil Conservation Service (SCS) personnel can guide you. If not, they can still give you general information.
TECHNICAL ASSISTANCE?	Maintain close contact with the Soil Conservation Service or your local Conservation District for the latest water supply forecast, and for soil information. SCS has water conservation pamphlets and other information that can help irrigators get by with less water.
COST-SHARE OR LOANS?	Maintain close contact with local offices of Agricultural Stabilization and Conservation Service (ASCS) and the Farmers Home Administration (FmHA). If a drought situation develops, funds might be made available for cost-sharing or loans to help you apply special water conservation practices.
CROPS, FEED, FERTILIZER, OR MARKETING QUESTIONS?	Contact your local Cooperative Extension Service office for crop selection alternatives, fertilizer recommendations, feed supply conditions, and marketing outlook.

SCS, ASCS, AND FmHA ARE LISTED IN THE PHONE BOOK UNDER "U.S. GOVERNMENT, AGRICULTURE, DEPARTMENT OF." COOPERATIVE EXTENSION SERVICE IS USUALLY LISTED WITH LOCAL COUNTY OFFICES.

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

NORMAN A. BERG
ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D C

Released by

LYNN A. BROWN
STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
SPOKANE, WASHINGTON

In Cooperation with

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DEPARTMENT OF ECOLOGY
STATE OF WASHINGTON

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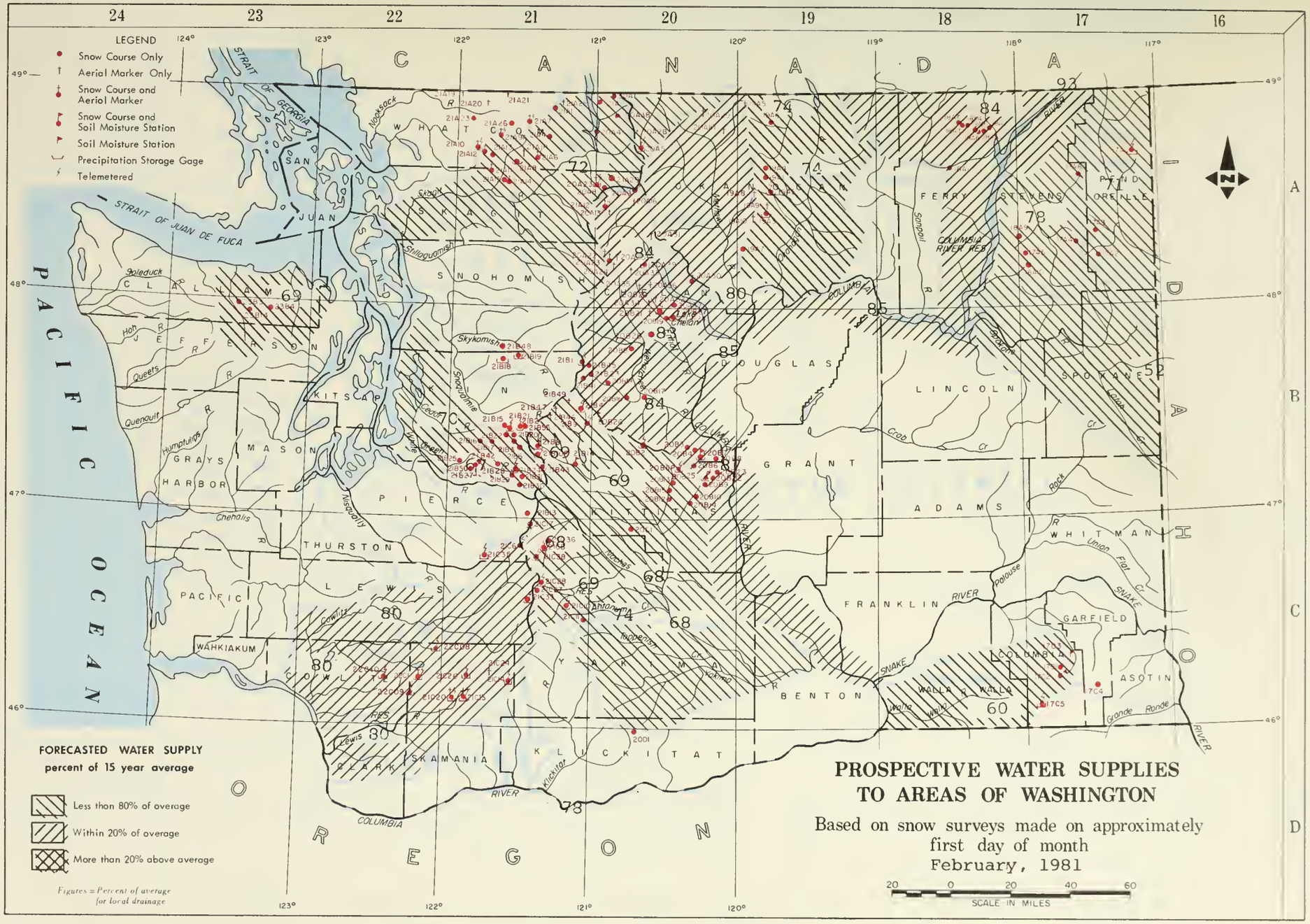
LEGEND
Snow Course Only
Aerial Marker Only
Snow Course and Aerial Marker
Snow Course and Soil Moisture Station
Soil Moisture Station
Precipitation Storage Gage
Telemetered
FORECASTED WATER SUPPLY
percent of 15 year average
Less than 80% of average
Within 20% of average
More than 20% above average
Figures = Percent of average for total drainage
PACIFIC OCEAN
CANADA
OREGON
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
SAN JUAN
WHATCOM
SKAGIT
SNOHOMISH
CLALLAM
JEFFERSON
KITSCAP
MASON
GRAYS HARBOR
PIERCE
THURSTON
LEWIS
PACIFIC
WAHKIAKUM
COWLITZ
CLARK
SKAMANIA
KLICKITAT
YAKIMA
KITTITAS
CHELAN
DOUGLAS
GRANT
LINCOLN
ADAMS
FRANKLIN
BENTON
WALLA WALLA
COLUMBIA
GARFIELD
ASOTIN
WHITMAN
SPOKANE
STEVENS
FERRY
PEND OREILLE
COLUMBIA RIVER RES
Nooksack
Skagit
Stillaguamish
Skykomish
Snoqualmie
Cedar
Green
White
Puyallup
Nisqually
Cowlitz
Lewis
Chehalis
Hoh
Queets
Quillayute
Humptulips
Soleduck
Methow
Okanogan
Similkameen
Sanpoil
Spokane
Kettle
Crab Cr
Rock Cr
Palouse
Union Flat Cr
Tucannon
Yakima
Klickitat
Walla Walla
Grande Ronde
COLUMBIA RIVER
SNAKE RIVER
PRESTON RES
Lewis RES
Tacoma
Seattle
Everett
Bellingham
Wenatchee
Spokane
Pasco
Yakima
Longview
Aberdeen
Port Angeles
Coulee City
Ellensburg
Ritzville
Colfax
Pullman
Dayton
Walla Walla
Kennewick
Goldendale
Ephrata
Moses Lake
Chelan
Omak
Okanogan
Republic
Newport
Colville
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Packwood
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Cedar Lake
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Twisp
Winthrop
Mazama
Tonasket
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Pomeroy
Clarkston
Asotin
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Friday Harbor
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Raymond
Longbeach
Cathlamet
Kalama
Stevenson
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Goldendale
Trout Lake
Mt Adams
Mt Rainier
Mt St Helens
Mt Baker
Mt Adam
Mt Hood
Mt Jefferson

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	1. A1SP	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	1BA1	19	36N	35E	5350
Okanogan River					
Clark	19A8o	2	36N	23E	7000
Muckomuck	19A9o	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28o	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2SP	33	37N	24E	4500
Starvation Mtn.	19A10o	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10o	10	38N	20E	6400
Dollar Watch	20A29o	8	39N	20E	7000
Harts Pass	20A5SP	7	37N	18E	6500
Horseshoe Basin	19A5o	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22o	12	31N	15E	6500
Greenwood Flat	20A25o	3	31N	16E	3540
Little Meadows	20A24o	8	31N	16E	5275
Lyman Lake	20A23SP	18	31N	16E	5900
Park Creek Flat	20A13o	19	34N	16E	2220
Park Creek Ridge	20A12SP	18	34N	16E	4600
Petersons	20A16o	3	34N	17E	3730
Rainy Pass	20A9SP	21	35N	17E	4780
Safety Harbor	20A30o	32	31N	20E	6300
War Creek Pass	20A31o	34	33N	18E	6500
Mirror Lake	20A39	30	31N	18E	5600
Entiat River					
Blue Creek G.S.	20B28o	19	28N	18E	5425
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33o	28	31N	17E	4540
Entiat River Trail	20A34o	2	29N	17E	3325
Four Mile Ridge	20B27o	15	28N	19E	6800
Fox Camp	20A36o	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	3540
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540
Pugh Ridge	20A32o	34	30N	18E	6725
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35o	21	30N	17E	3910
Tommy Creek	20B21o	10	28N	18E	4900
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	3170
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2SP	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1SP	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough 2	20B25SP	10	20N	20E	5310
Colockum Creek					
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Visto	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7SP	30	21N	20E	4400
Yakima River					
Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	21B9SP	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38SP	9	15N	12E	4600
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Fish Lake	2184SP	28	24N	14E	3371
Green Lake	21C10SP	3	12N	13E	6000
Grouse Camp	20B11SP	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46.	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47o	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17SP	6	16N	11E	5400
Nonum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	2188P	13	21N	11E	2450
Van Epps Pass	20B26o	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49o	12	23N	13E	3024
White Pass (East Side)	21C28SP	2	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Touchet River					
Couse	17C3m	2	9N	40E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Touchet No. 2	17C5SP	6	7N	40E	5530
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
Lewis River					
Lone Pine Shelter	21C26SP	8	9N	7E	3800
Marble Mountain	22C09SP	26	8N	5E	3200
Plains of Abraham	22C1SP	35	9N	5E	4400
Spencer Meadow	21C20SP	16	8N	7E	3400
Surprise Lakes	21C13SP	14	7N	8E	4250
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Pigtail Peak	21C33SP	11	13N	11E	5900
Potato Hill	21C14SP	36	10N	10E	4500
Ryan Lake	22C08SP	9	10N	6E	3280
Sheep Canyon	22C10SP	12	8N	4E	4920

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Paradise Park (New)	21C35SP	13	15N	8E	5500
White River					
Corral Pass	21813SP	30	18N	11E	6000
Green River					
Airstrip	21824P	18	20N	11E	1800
Charley Creek	21825	27	21N	8E	1200
Cougar Mountain	21842SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B5C	22	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21843SP	14	20N	11E	5000
Stampede Pass	21B10SP	25	21N	11E	3860
Twin Camp	21830	18	19N	11E	4100
Cedar River					
City Cabin	2183	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16P	31	22N	9E	2500
Mt. Washington	21815P	8	22N	9E	3000
Rex River	21B17P	11	21N	9E	2400
South Fork Cedar	21B6P	24	21N	10E	3000
Tinkham Creek	21820P	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2P	19	22N	11E	3625
South Fork Tolt	21B18P	26	26N	9E	1900
Olallie Meadows East	21B55SP	20	22N	11E	8700
Skykomish River					
Lake Elizabeth	21819P	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows (New)	20A38	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	20A7	19	40N	14E	2800
Thunder Basin	21A30	10	35N	14E	4200
Baker River					
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Morten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AF	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19o	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Twin Lakes	21A21o	16	40N	9E	5200

OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	31	29N	6W	4500
Elwha River					
Hurricane	23B3	36	29N	7W	4500

LEGEND

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course And Aerial Marker
21A7M	Snow Course And Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course And Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow

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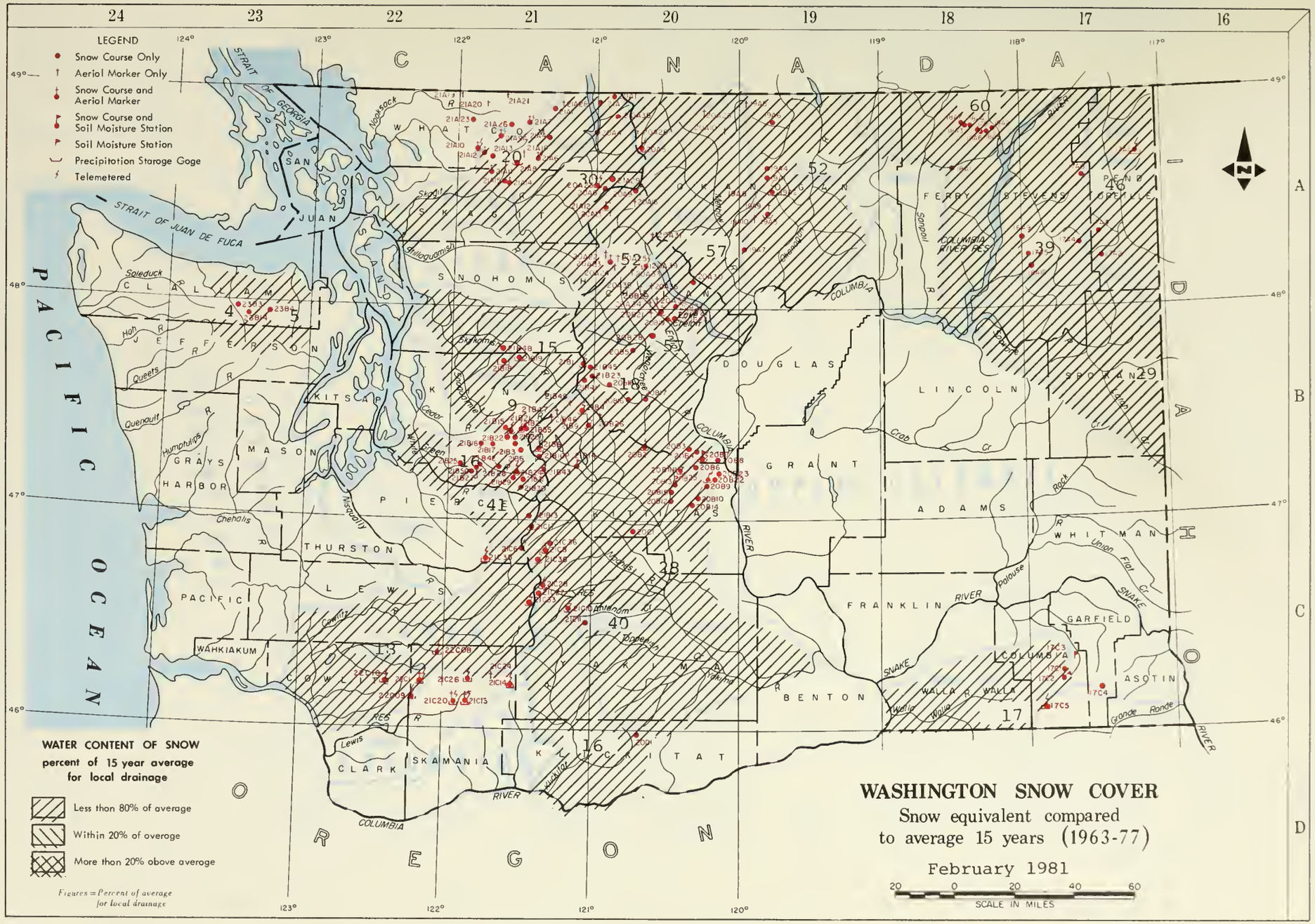

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UPPER COLUMBIA DRAINAGE

Pend Oreille River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	1 A1SP	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970

Kettle River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600

Colville River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370

Sanpoil River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Sherman Creek Pass	18A1	19	36N	35E	5350

Okanogan River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2SP	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845

Methow River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5SP	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650

Chelan Lake Basin

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23SP	18	31N	16E	5900
Park Creek Flat	20A13a	19	34N	16E	2220
Park Creek Ridge	20A12SP	18	34N	16E	4600
Petersons	20A16a	2	34N	17E	3730
Rainy Pass	20A9SP	21	35N	17E	4780
Safety Harbor	20A30a	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Mirror Lake	20A39	30	31N	18E	5600

Entiat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Blue Creek G.S.	20B28a	19	28N	18E	5425
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4540
Entiat River Trail	20A34a	2	29N	17E	3325
Four Mile Ridge	20B27a	15	28N	19E	6800
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	3540
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540
Pugh Ridge	20A32a	34	30N	18E	6725
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3910
Tommy Creek	20B21a	10	28N	18E	4900

Wenatchee River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Berne-Mill Creek	21B23	7	26N	15E	3170
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2 SP	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1SP	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough 2	20B25SP	10	20N	20E	5310

Colockum Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300

Squilchuck Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400

Stemilt Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7SP	30	21N	20E	4400

Yakima River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	21B9SP	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38SP	9	15N	12E	4600
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Fish Lake	21B4SP	28	24N	14E	3371
Green Lake	21C10SP	3	12N	13E	6000
Grouse Comp	20B11SP	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17SP	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8P	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28SP	2	13N	11E	4500

LOWER COLUMBIA DRAINAGE

Asotin Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Spruce Springs	17C4	9	8N	40E	5700

Touchet River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Couse	17C3m	2	9N	40E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Touchet No. 2	17C5SP	6	7N	40E	5530

Klickitat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Satus Pass	20D1	21	6N	17E	4030

Lewis River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Lone Pine Shelter	21C26SP	8	9N	7E	3800
Marble Mountain	22C09SP	26	8N	5E	3200
Plains of Abraham	22C1SP	35	9N	5E	4400
Spencer Meadow	21C20SP	16	8N	7E	3400
Surprise Lakes	21C13SP	14	7N	8E	4250

Cowlitz River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cayuse Pass	21C6	15	16N	10E	5300
Pigtail Peak	21C33SP	11	13N	11E	5900
Pototo Hill	21C14SP	36	10N	10E	4500
Ryan Lake	22C08SP	9	10N	6E	3280
Sheep Canyon	22C10SP	12	8N	4E	4920

PUGET SOUND DRAINAGE

Nisqually River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Paradise Park (New)	21C35SP	13	15N	8E	5500

White River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Corral Pass	21B13SP	30	18N	11E	6000

Green River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Airstrip	21B24P	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B5C	22	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10SP	25	21N	11E	3860
Twin Camp	21B30	18	19N	11E	4100

Cedar River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16P	31	22N	9E	2500
Mt. Washington	21B15P	8	22N	9E	3000
Rex River	21B17P	11	21N	9E	2400
South Fork Cedar	21B6P	24	21N	10E	3000
Tinkham Creek	21B20P	1	21N	10E	3400

Snoqualmie River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2P	19	22N	11E	3625
South Fork Tolt	21B18P	26	26N	9E	1900
Olallie Meadows East	21B55SP	20	22N	11E	8700

Skykomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Lake Elizabeth	21B19P	33	26N	10E	2900

Skagit River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Ereezeout Creek Trail	20A1	14	40N	14E	3500
Ereezeout Meadows (New)	20A38	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	20A7	19	40N	14E	2800
Thunder Basin	21A30	10	35N	14E	4200

Baker River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Josper Pass	21A6A	17	38N	11E	5400
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AP	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500

Nooksack River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

Dungeness River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Deer Park	23B4	1	28N	5W	5200

Morse Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cox Valley	23B14	31	29N	6W	4500

Elwha River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Hurricone	23B3	36	29N	7W	4500

LEGEND

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course And Aerial Marker
21A7M	Snow Course And Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course And Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow

WATER SUPPLY OUTLOOK

State of Washington

February 1, 1981

The outlook for the water supply in the State of Washington is not very good; and if it doesn't start improving VERY soon, it will turn out to be very bad. The snowpack that was measured on or about February 1, ranges from 4 percent of normal over on the Olympics to a high of 60 percent on the Kettle River Drainage. What snow that fell over the state in late November and December was pretty well washed out during the late December rain storms and nothing has fallen since. What is even worse, the long range weather forecast is for more of the same --- warm and dry. Up in British Columbia, the situation is not quite as bad; especially on the Upper Columbia and Kootenay. The southwestern portion of the Province is no better off than we are. Since most of the Columbia River water comes out of Eastern British Columbia, and is the major source of our power supply; we are not too bad off in that respect.

SNOW COVER

The snowpacks in the state are near the record lows set in 1977. Most of us can remember that year; so we will use it as a comparison throughout this report. By comparison, the situation does not look so bad. The February snow water equivalent when compared to average this year is 43 percent for the Upper Columbia Basin in Washington. The same time period for 1977 was only 20 percent. Along the Lower Columbia, it is 17 percent, as compared to 11 percent for 1977. On the West Slopes of the Cascades, the comparison is 22 percent for this year and 14 percent for 1977. Only two snow courses in the Olympics are compared; and although this year, they have only 4 and 5 percent of a normal snowpack - they were completely bare in 1977.

RESERVOIRS

As a result of the good rainfall we had in November and December, the storage reservoirs are all in good shape The overall picture is so good that some reservoirs are even being managed for flood control. While this might seem odd in a water-short year, it is good management practice. Of the five reservoirs in the Yakima Basin, only Lake Cle Elum has below normal storage. This is due to the court ordered release of fish water. Bumping Lake was full, but has been drawn down to prevent uncontrolled spilling. The power reservoirs are all in excellent shape.

PRECIPITATION

The rainfall this past fall and early winter has been a real hodge-podge. Most of the drainage divisions reported sub-normal precipitation in the fall. It started to improve in November and by the last of December, we were in flood conditions - warm and wet. This removed most of the snow that had occurred. Since January 1, it has been warm and dry and the outlook is for more of the same. Unless there is a dramatic turn around in the very near future, we are going to run short of water come late summer.

STREAMFLOW

River flows during January were generally high where the source of water was snow; and low where there was little snow left to melt off. The Similkameen River had the highest January flow in its 53-year record; and the Okanogan, the second highest in its 72-years - all this with rainfall near 50 percent of normal. The only other source of this water is melting snow. Generally speaking, Upper Columbia Basin runoff was well above normal; Lower Columbia, well below; and Puget Sound Drainages, normal to below. Forecasts have been prepared in conjunction with the National Weather Service, River Forecast Center; and show that water supplies will be adequate over most of the area IF we get normal rainfall and mountain snowfall for the rest of the year.If we don't, we will have to lower, even further, the forecast numbers developed. As in 1977, the best forecast is for the Columbia at Birchbank; and the worst - some of the Yakima forecast points. The bright side is that this year's numbers are 20 to 30 percent better than they were in 1977.

The Washington Snow Survey Program has acquired help in the form of an Assistant Snow Survey Supervisor. James K. Marron has transferred here from Denver, Colorado. Before Denver, he was located in Reno, Nevada, and in several SCS field offices in Colorado. Jim brings to the state an expertise in computer modeling and much experience in SNOTEL electronics. His presence will be a boon to the water users in the state.

STREAMFLOW FORECASTS - FEBRUARY, 1981

The following summarized runoff forecasts are based principally on mountain snow-cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. These forecasts are made as a product of the cooperative efforts of the Soil Conservation Service and the National Weather Service. Streamflow figures for 1980 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1981	Seasonal Streamflow in Thousands of Acre-Feet % 15-yr. Avg.	Forecast period	1980	1979	1978	15-yr. Average 63-77
COLUMBIA BASIN							
COLUMBIA RIVER SYSTEM							
Columbia River	42500	93	Apr-Sept	40816	34484	44008	45502
at Birchbank 1/	33800	93	Apr-July	34085	27181	34030	36353
	24350	93	Apr-June	27623	19661	24082	26194
Columbia River	50800	85	Apr-Sept	61016	52769	66868	68012
at Grand Coulee 1/	48700	85	Apr-July	52320	44096	54559	57035
	37600	85	Apr-June	43871	35138	41585	44273
Columbia River	64100	87	Apr-Sept	66512	55298	72892	73935
bl. Rock Island Dam 1/	54100	87	Apr-July	57767	46700	60163	62462
	42200	87	Apr-June	48667	37453	46242	48489
Columbia River	81200	78	Apr-Sept	93170	76843	101055	103493
at The Dalles, OR 1/	69000	78	Apr-July	79931	65758	84815	88519
	55600	78	Apr-June	68316	55016	67353	71237
PEND OREILLE RIVER SYSTEM							
Pend Oreille River	11200	72	Apr-Sept	13271	11639	15581	15950
bl. Box Canyon	10600	72	Apr-July	12116	11095	14080	14690
	8500	72	Apr-June	10776	10217	11750	11760
KETTLE RIVER SYSTEM							
Kettle River	1550	84	Apr-Sept	2154	1265	2056	1846
nr. Laurier	1505	86	Apr-July	2066	1211	1877	1754
	1360	86	Apr-June	1922	1137	1686	1588
Colville River	105	78	Apr-Sept			138	134
at Kettle Falls	97	79	Apr-July			125	123
	90	78	Apr-June			117	115

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Basin, Stream and Station	Forecast Runoff 1981	% 15-yr. Avg.	Forecast period	1980	1979	1978	15-Yr. Average 63-77
			Seasonal Streamflow in Thousands of Acre-Feet				
SPOKANE RIVER SYSTEM **							
Spokane River	1500	52	Apr-Sept	2214	2809	2427	2910
at Post Falls, ID 2/	1400	51	Apr-July	2046	2757	2330	2733
	1300	50	Apr-June	1904	2678	2119	2600
OKANOGAN RIVER SYSTEM							
Similkameen River	1120	74	Apr-Sept	1476	870	1505	1517
nr. Nighthawk	1060	75	Apr-July	1388	809	1365	1417
	920	77	Apr-June	1245	726	1170	1192
Okanogan River	1270	74	Apr-Sept	1551	911	1690	1719
nr. Tonasket	1175	75	Apr-July	1423	830	1500	1565
	980	75	Apr-June	1240	738	1286	1305
METHOW RIVER SYSTEM							
Methow River	810	80	Apr-Sept	996		1174	1011
nr. Pateros	750	80	Apr-July	934		1058	937
	630	80	Apr-June	811		876	791
CHELAN RIVER SYSTEM							
Chelan River	1050	85	Apr-Sept	1113	753	1335	1237
at Chelan 3/	920	85	Apr-July	1014	663	1164	1080
	720	86	Apr-June	854	553	906	834
Stehekin River	740	84	Apr-Sept		566	888	883
at Stehekin	620	83	Apr-July		477	750	744
	470	84	Apr-June		387	563	557
Entiat River	200	83	Apr-Sept		134	295	241
nr. Ardenvoir	180	83	Apr-July		120	268	218
	150	86	Apr-June		104	275	174
WENATCHEE RIVER SYSTEM							
Wenatchee River	1100	85	Apr-Sept			1311	1297
at Plain	1010	87	Apr-July			1171	1156
	800	89	Apr-June			945	903
Wenatchee River	1480	84	Apr-Sept	1516	1204	1755	1767
at Peshastin	1300	82	Apr-July	1399	1110	1576	1587
	1050	84	Apr-June	1208	969	1275	1250
Stemilt Basin nr. Wenatchee	115*	83	May-Sept				138*
Icicle Creek	290	78	Apr-Sept				371
nr. Leavenworth	275	80	Apr-July				342
	225	81	Apr-June				279

* Thousands of Miners' Inches.

** Forecasts made by Jack A. Wilson, Soil Conservation Service, Boise, Idaho.

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

Basin, Stream and Station	Forecast Runoff 1981	% 15-yr. Avg.	Forecast period	1980	1979	1978	15-yr. Average 63-77
			Seasonal Streamflow in Thousands of Acre-Feet				
YAKIMA RIVER SYSTEM							
Yakima River	100	69	Apr-Sept	115	124	114	145
nr. Martin 4/	90	68	Apr-July	103	114	101	133
	80	70	Apr-June	95	101	93	114
Yakima River	675	69	Apr-Sept	792	714	808	975
at Cle Elum 5/	625	71	Apr-July	716	683	696	883
	540	72	Apr-June	646	599	614	751
Yakima River	1475	68	Apr-Sept	1833	1388	1977	2168
nr. Parker 6/	1300	67	Apr-July	1733	1287	1691	1954
	1100	65	Apr-June	1610	1179	1487	1693
Kachess River	90	71	Apr-Sept	111	101	98	126
nr. Easton 7/	85	71	Apr-July	105	95	91	119
	75	72	Apr-June	91	88	84	104
Cle Elum River	350	73	Apr-Sept		348	417	479
nr. Roslyn 8/	325	75	Apr-July	350	326	372	435
	275	77	Apr-June	314	292	318	358
Bumping River	100	68	Apr-Sept	129	99	119	146
nr. Nile 9/	90	68	Apr-July	120	92	108	133
	75	71	Apr-June	111	82	93	106
American River	85	67	Apr-Sept			111	127
nr. Nile	75	65	Apr-July			93	116
	65	68	Apr-June			84	95
Tieton River	175	69	Apr-Sept	224	179	228	252
at Tieton Dam 10/	145	68	Apr-July	192	148	188	212
	115	68	Apr-June	166	120	148	168
Naches River	610	68	Apr-Sept	729	574	721	894
nr. Naches 11/	550	68	Apr-July	694	528	657	807
	450	60	Apr-June	638	478	564	680
Ahtanum Creek	35	74	Apr-Sept			48	47
nr. Tampico 12/	30	71	Apr-July			43	42
	26	70	Apr-June			37	37

4/ Observed flow corrected for storage in Lake Keechelus.
5/ Observed flow corrected for storage in Keechelus, Kachess, and Cle Elum Lakes and diversion by Kittitas Canal.
6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation, and Sunnyside Canals.
7/ Observed flow corrected for storage in Lake Kachess.
8/ Observed flow corrected for storage in Lake Cle Elum.
9/ Observed flow corrected for storage in Bumping Lake.
10/ Observed flow corrected for storage in Rimrock Lake.
11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals, and City of Yakima.
12/ Observed flow of North and South Forks (Combined).

Basin, Stream and Station	Forecast Runoff 1981	% 15-yr. Avg.	Forecast period	1980	1979	1978	15-yr. Average 63-77
			Seasonal Streamflow in Thousands of Acre-Feet				
LOWER COLUMBIA RIVER SYSTEM							
Mill Creek	10.50	60	Apr-Sept			12.11	17.50
at Walla Walla	10.00	58	Apr-July			11.99	17.33
	10.00	58	Apr-June			11.91	17.15
Lewis River	1040	80	Apr-Sept	1001	974	904	1301
at Ariel 13/	900	80	Apr-July	883	839	610	1131
	800	80	Apr-June	798	755	515	995
Cowlitz River							
bl. Mayfield Dam	1700	80	Apr-Sept	1626		1635	2125
	1500	81	Apr-July	1432		1348	1853
	1250	80	Apr-June	1275		1150	1552
Cowlitz River	2210	80	Apr-Sept	1976	1985	2232	2767
at Castle Rock 14/	1900	79	Apr-July	1852	1746	1835	2401
	1600	79	Apr-June	1649	1537	1581	2028
OLYMPIC PENINSULA							
DUNGENESS RIVER SYSTEM							
Dungeness River	110	69	Apr-Sept			152	160
nr. Sequim	90	69	Apr-July			115	130
	70	73	Apr-June			83	96
PUGET SOUND							
SKAGIT RIVER SYSTEM							
Skagit River	1900	75	Feb-Aug		1785	2204	2532
at Newhalem 15/	1700	72	Apr-Sept		1648	2115	2356
	1400	71	Apr-July		1359	1690	1972
	1050	71	Apr-June		1102	1285	1485
GREEN RIVER SYSTEM							
Green River	315	67	Feb-Sept			294	467
bl. Howard Hanson Dam 16/							
CEDAR RIVER SYSTEM							
Cedar River							
nr. Cedar Falls	65	70	Apr-Sept				93

13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
14/ Observed flow corrected for storage in Mayfield Reservoir.
15/ Observed flow corrected for storage in Diablo, Ross and Gorge Reservoirs.
16/ Observed flow corrected for storage in Howard Hanson Dam.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about February 1, 1981, as percent of the same date in 1980 and 1979 and average of record. We have also added a comparison of 1977 data with average for your information, since 1977 was considered a low water year.

Tributary Basin	No. of Courses Average	1981 Snow Water Expressed as percent of 1980	1979	1963-77 Avg.	1977 as percent of Average
UPPER COLUMBIA BASIN					
Pend Oreille	9	56	88	46	26
Kettle	15	104	112	60	43
Colville	4	48	63	39	14
Spokane	6	40	29	29	29
Okanogan	28	80	125	52	33
Methow	6	67	276	57	15
Chelan	5	60	86	52	16
Entiat	11	76	148	57	10
Wenatchee	9	23	27	18	12
Yakima	24	33	46	28	4
Ahtanum	2	32	58	40	-
LOWER COLUMBIA					
Mill Creek	3	24	19	17	19
Klickitat	1	21	38	16	-
Cowlitz	2	20	42	18	9
PUGET SOUND					
White	2	46	65	41	11
Green	8	25	23	16	8
Snoqualmie	1	19	14	9	2
Skykomish	2	20	23	15	17
Skagit	12	40	58	30	25
Baker	9	34	50	20	18
OLYMPIC PENINSULA					
Elwha	1	12	9	4	-
Dungeness	1	8	9	5	-

RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured (February) 1981	1980	1979	Normal*
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	180.0	54.9	13.7	145.3
Columbia	Franklin D. Roosevelt Lake	5232.0	4726.9	3063.5	4228.4	3698.2
Columbia	Banks Lake	714.9	120.8	690.9	690.8	619.4
Okanogan	Conconully Reservoir	13.0	6.8	3.0	9.7	6.2
Okanogan	Conconully Lake	10.5	10.4	8.3	10.5	7.6
Chelan	Lake Chelan	676.1	481.3	255.7	276.5	294.2
		YAKIMA				
Yakima	Keechelus Lake	157.8	113.8	67.4	66.2	97.6
Kachess	Kachess Lake	239.0	179.2	67.9	178.0	173.4
Cle Elum	Lake Cle Elum	436.9	220.9	361.7	65.6	259.7
Bumping	Bumping Lake	33.7	17.0	9.2	3.7	7.8
Tieton	Rimrock Lake	198.0	170.5	54.6	138.7	118.0
		PUGET SOUND				
Skagit	Ross Reservoir	1404.1	1293.9	845.8	760.5	1012.6
Skagit	Diablo Reservoir	90.6	87.6	87.9	86.8	84.2
Skagit	Gorge Reservoir	9.8	7.9	7.1	8.3	7.9

1/ Based on Active Storage

* 15-yr. Average 1963-1977

PRECIPITATION 1/

Division Average Observations and Departures

Drainage Divisions	FALL Sept-Oct Observed	FALL 1980 2/ Departure	WINTER Nov. 1980 - Jan. 1981 Observed	WINTER Nov. 1980 - Jan. 1981 2/ Departure
Columbia in Canada	3.76	-1.26	10.60	-0.53
Pend Oreille - Spokane	2.75	-1.29	10.44	-1.74
Northeastern Washington	2.37	-0.11	5.32	-1.39
Southeastern Washington	2.33	-0.18	6.21	-0.85
Central Washington	1.60	+0.63	3.95	+0.20
North Central Washington	1.45	-0.14	4.49	-0.35
Northwest Slope Cascades	7.35	-5.86	35.81	-2.12
Southwest Slope Cascades	3.89	-4.79	25.31	-3.60

Northeastern Washington	- Lower Spokane, Colville, Sanpoil, and Lower Kettle Drainages.
Southeastern Washington	- Touchet, Tucannon, and Palouse Drainages.
Central Washington	- Yakima, Wenatchee, and Chelan Drainages.
North Central Washington	- Methow and Okanogan Drainages.
Northwest Slope Cascades	- Puget Sound Drainages.
Southwest Slope Cascades	- Lower Columbia Drainages.

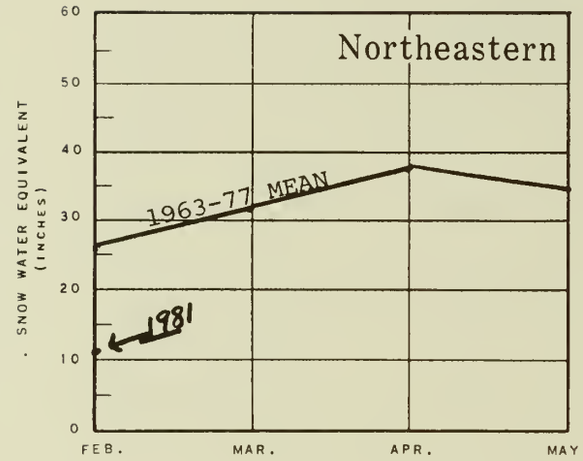
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorlogical Services of Canada and the National Weather Service.

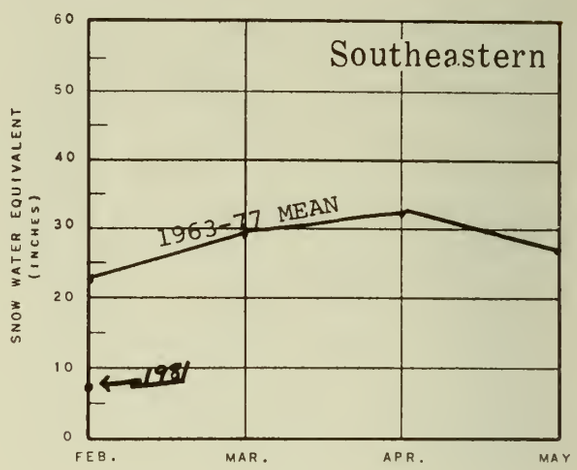
2/ - Departure from 15-year (1958-72) drainage division average.

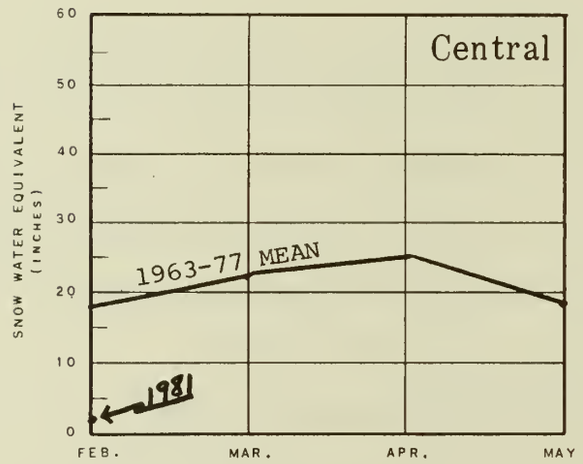
WASHINGTON SNOW COVER

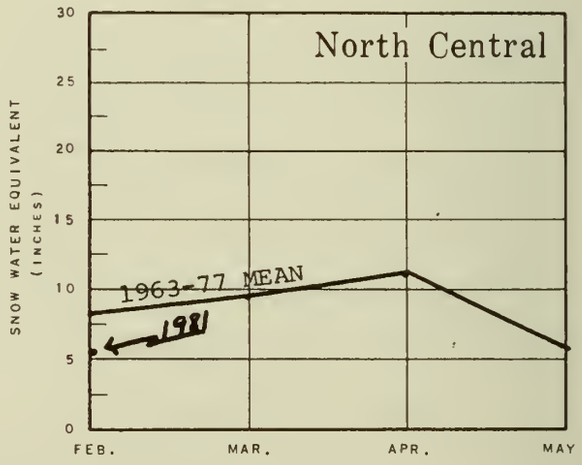
1981

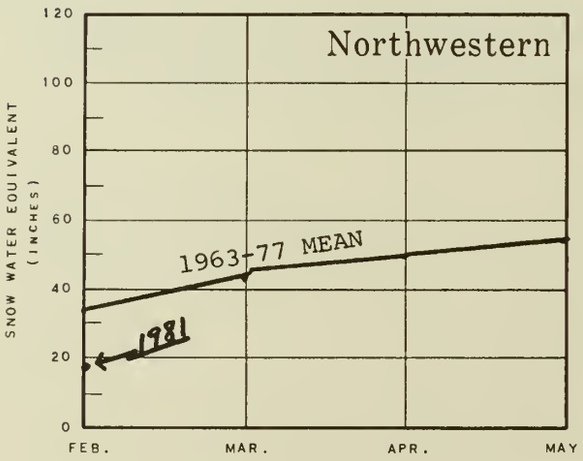
DRAINAGE AREAS

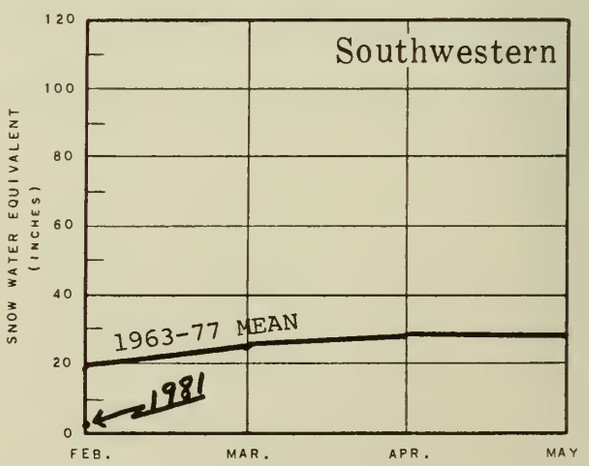










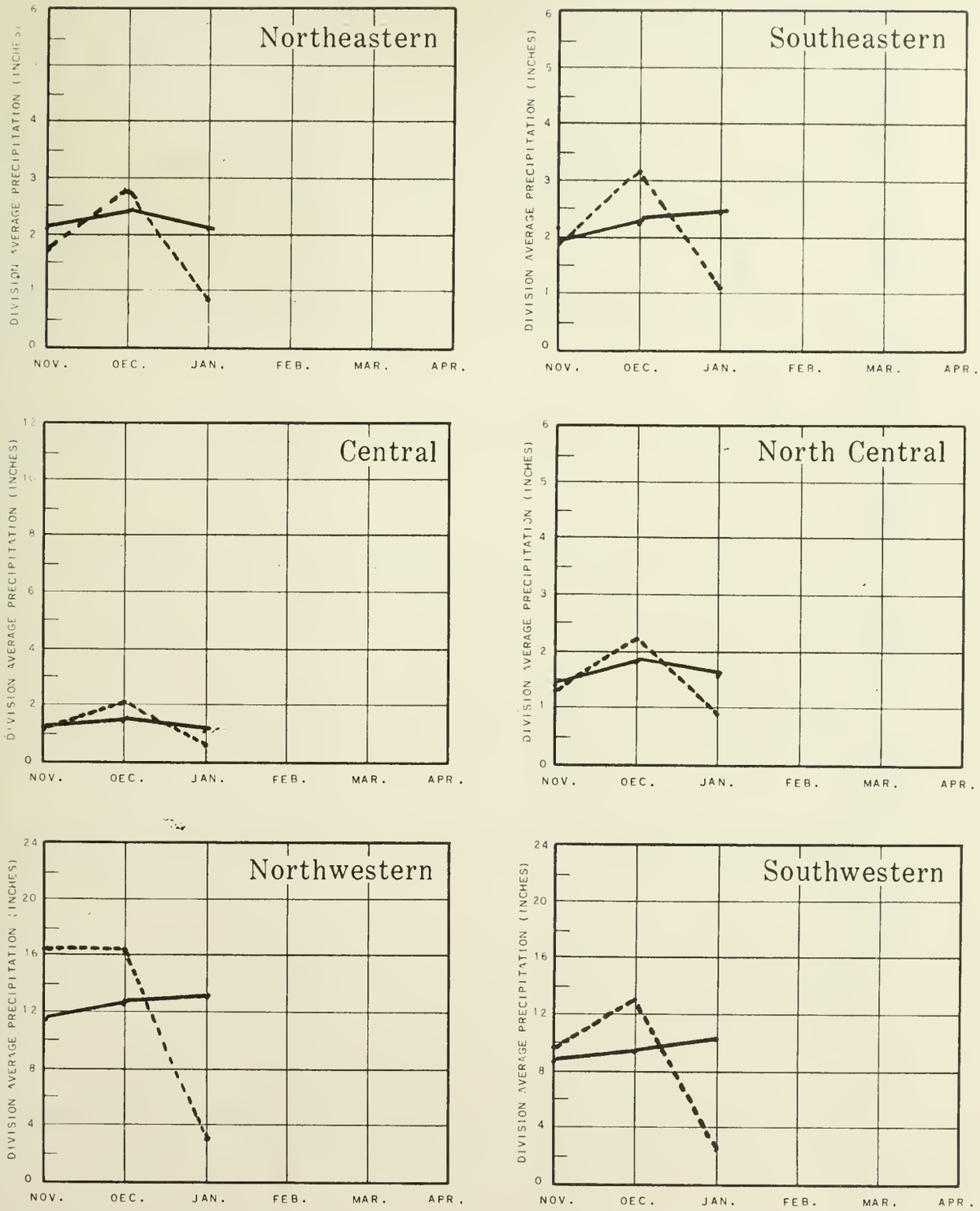


M7-L-22028G

WASHINGTON VALLEY PRECIPITATION

1981

DRAINAGE AREAS

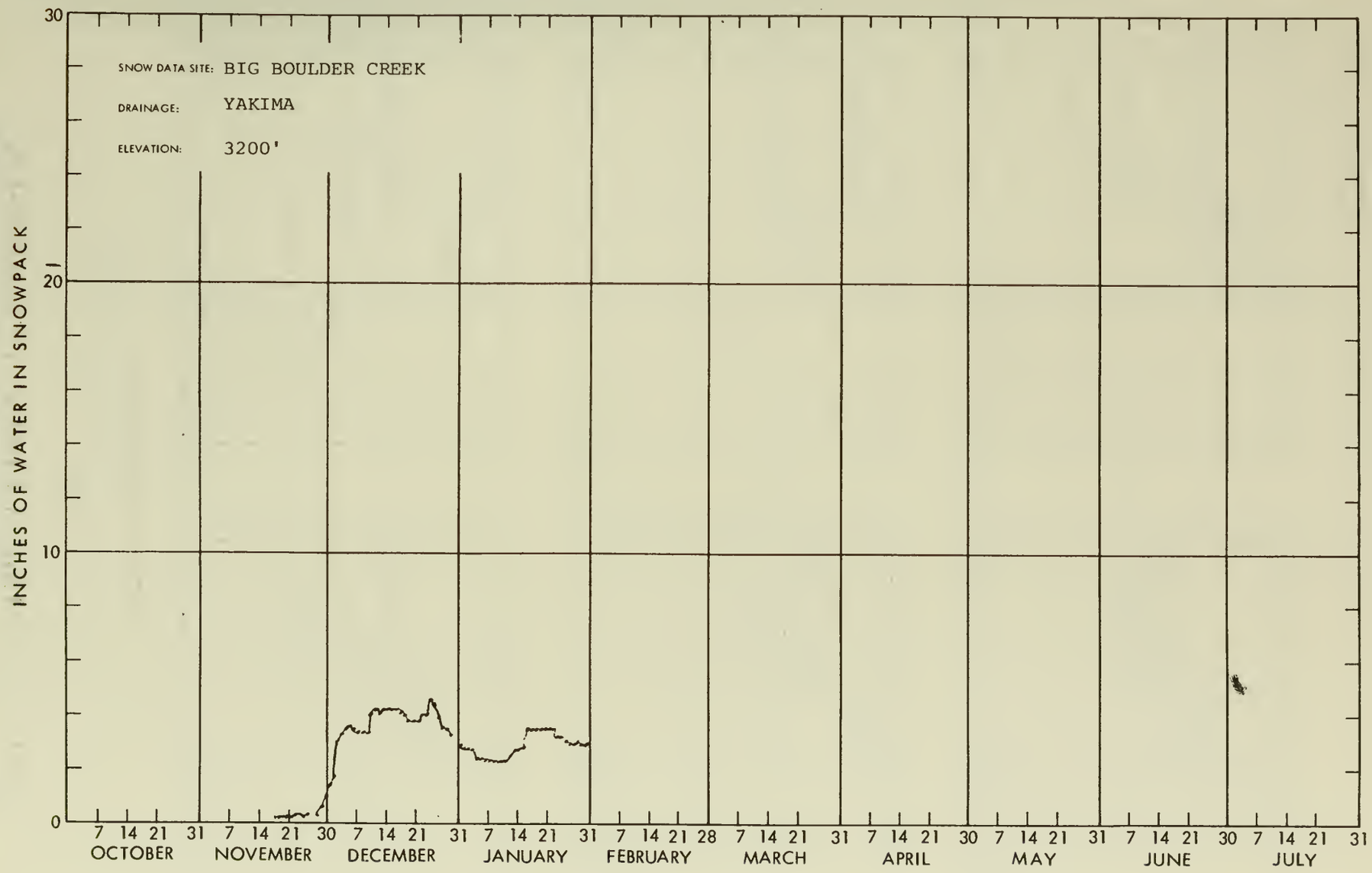


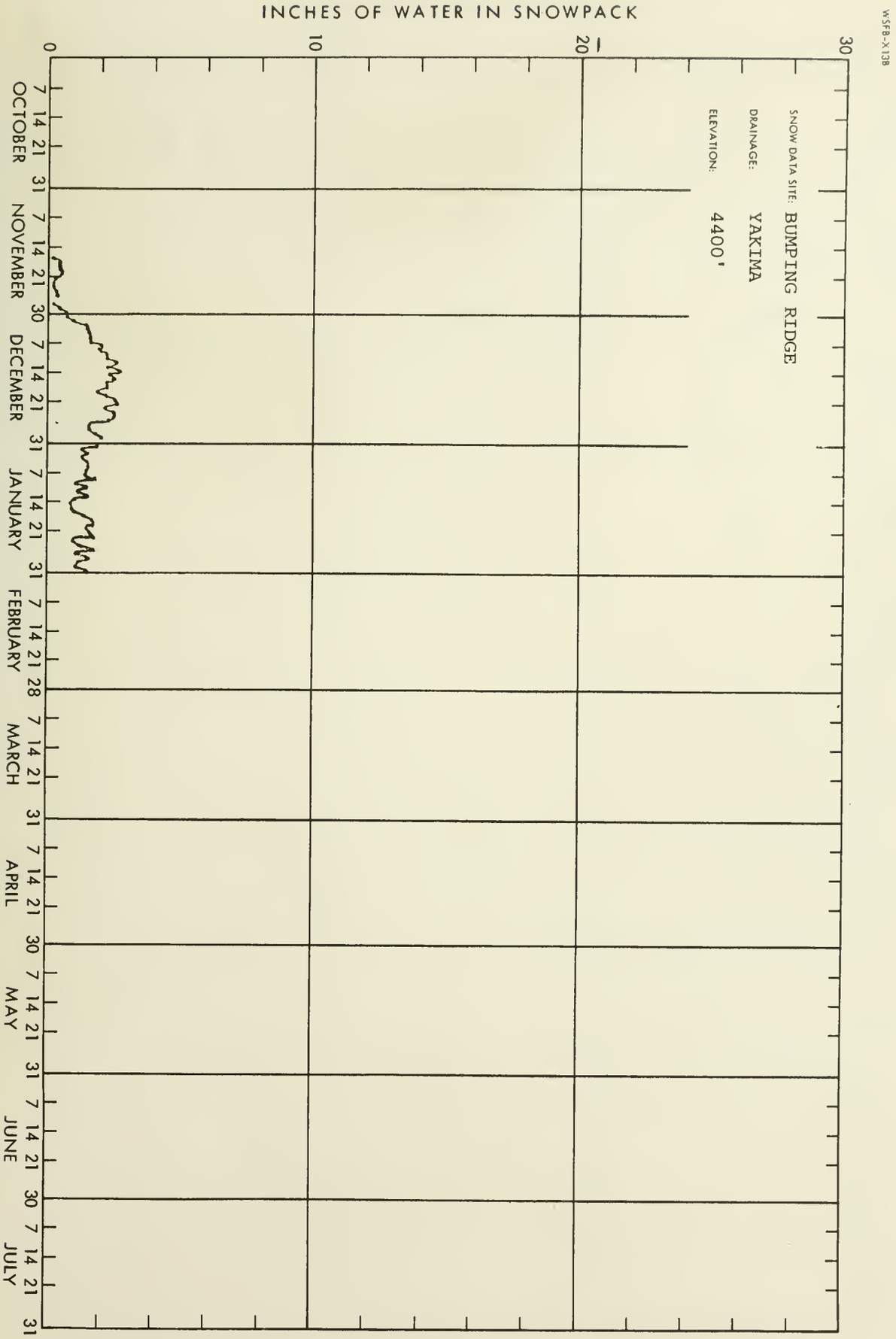
Average: ———
1981 : - - - - -

Preliminary Analysis by National Weather Service

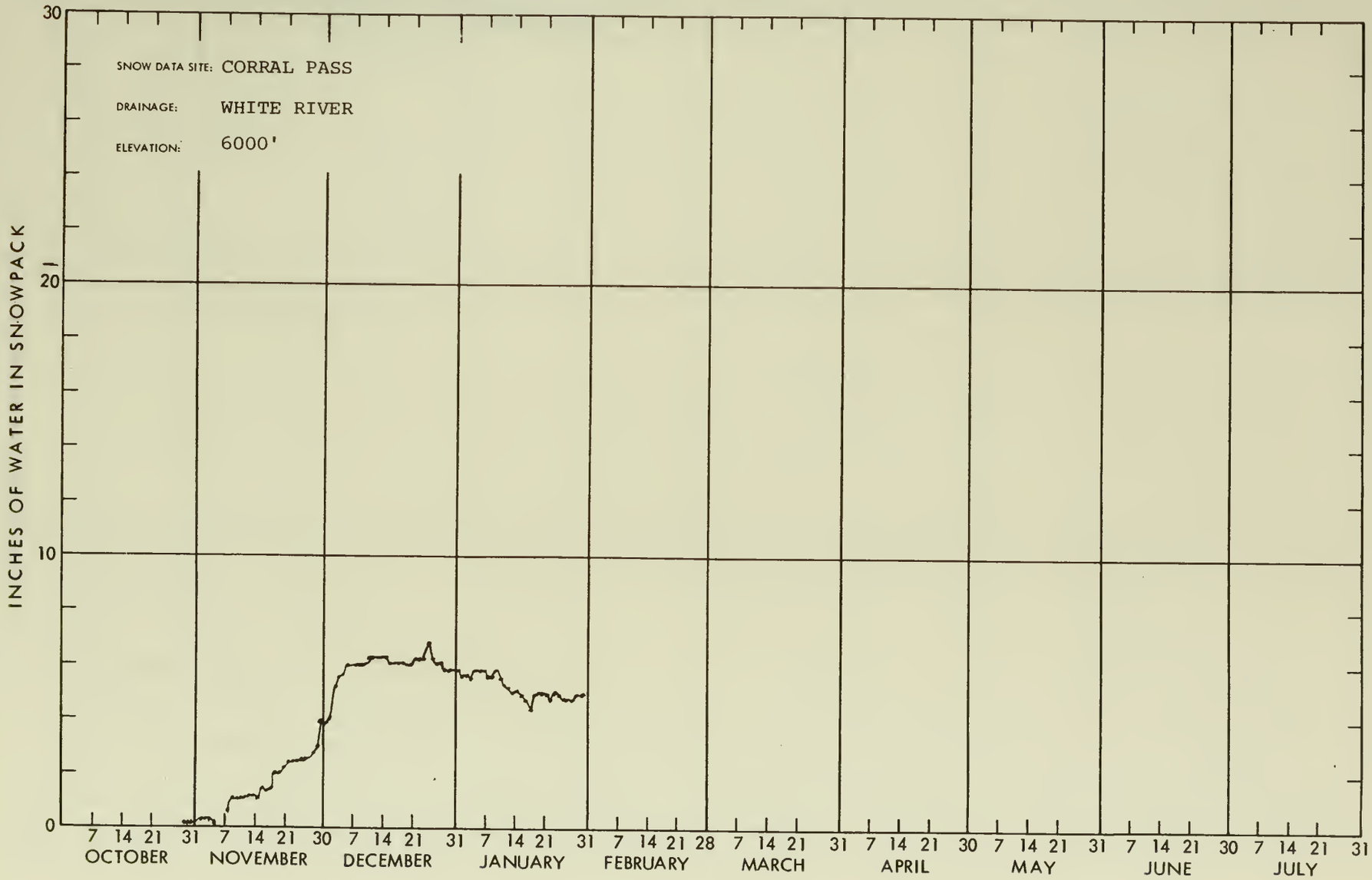
M7-L-22028H

WSFB-X138


SNOW DATA SITE: BIG BOULDER CREEK
DRAINAGE: YAKIMA
ELEVATION: 3200'
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY


WSFB-X13B
SNOW DATA SITE: BUMPING RIDGE
DRAINAGE: YAKIMA
ELEVATION: 4400'
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31
OCTOBER
7 14 21 30
NOVEMBER
7 14 21 31
DECEMBER
7 14 21 31
JANUARY
7 14 21 28
FEBRUARY
7 14 21 31
MARCH
7 14 21 30
APRIL
7 14 21 31
MAY
7 14 21 30
JUNE
7 14 21 31
JULY

WSFB-X13B


SNOW DATA SITE: CORRAL PASS
DRAINAGE: WHITE RIVER
ELEVATION: 6000'
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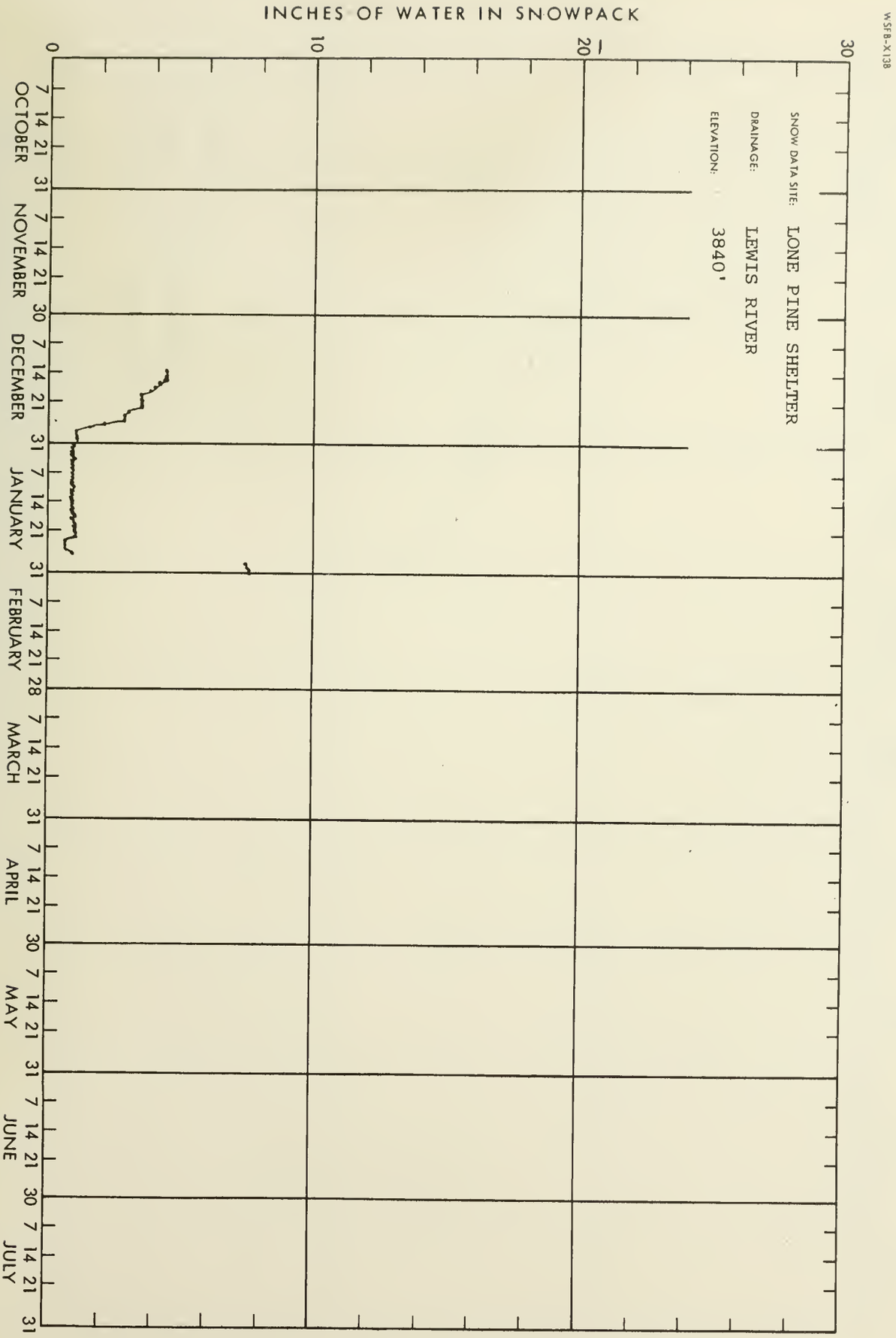
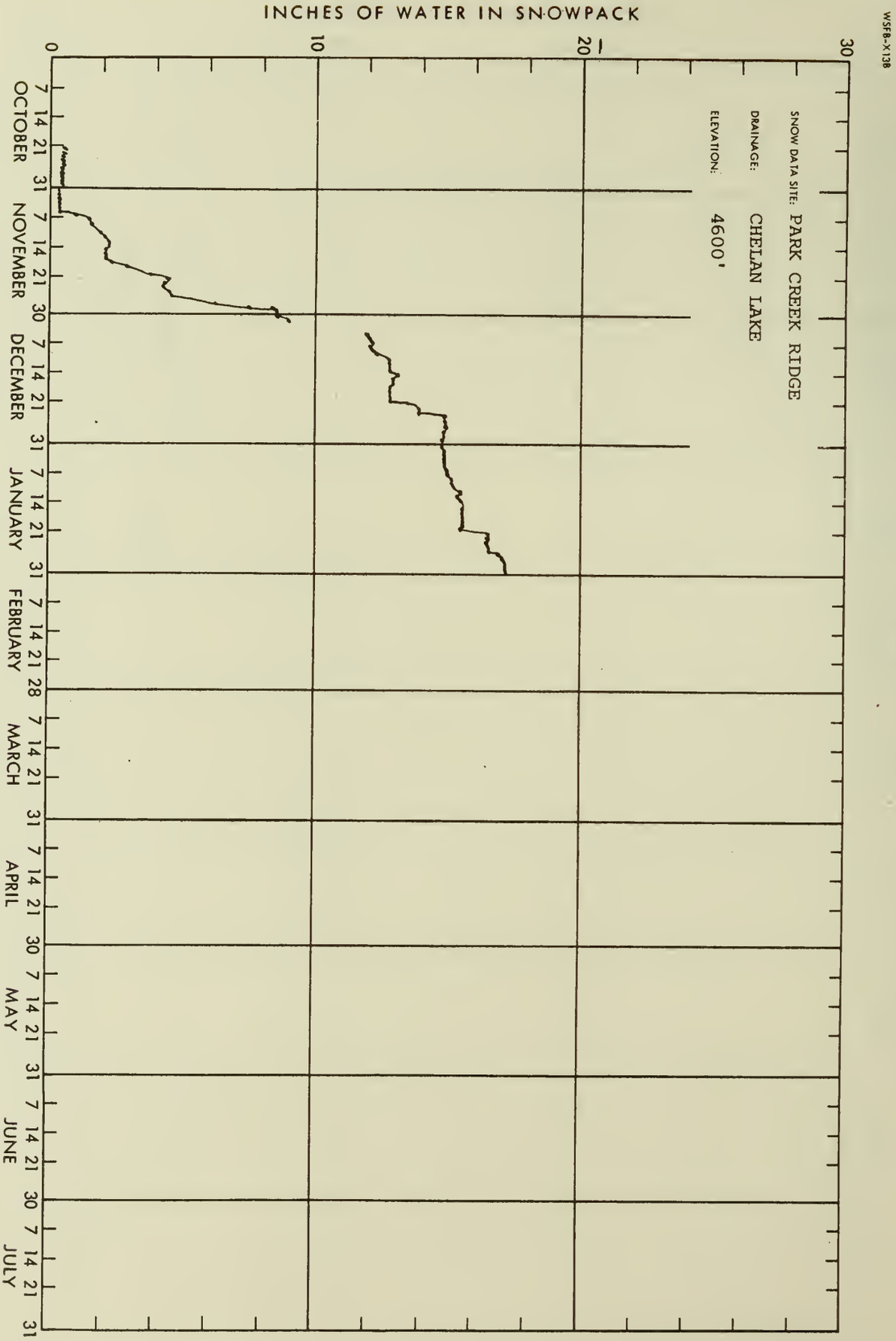
20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY


WSFB-X138
SNOW DATA SITE: LONE PINE SHELTER
DRAINAGE: LEWIS RIVER
ELEVATION: 3840'
INCHES OF WATER IN SNOWPACK
30
20
10
0
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY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SNOW DATA SITE: PARK CREEK RIDGE
DRAINAGE: CHELAN LAKE
ELEVATION: 4600'
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
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JANUARY
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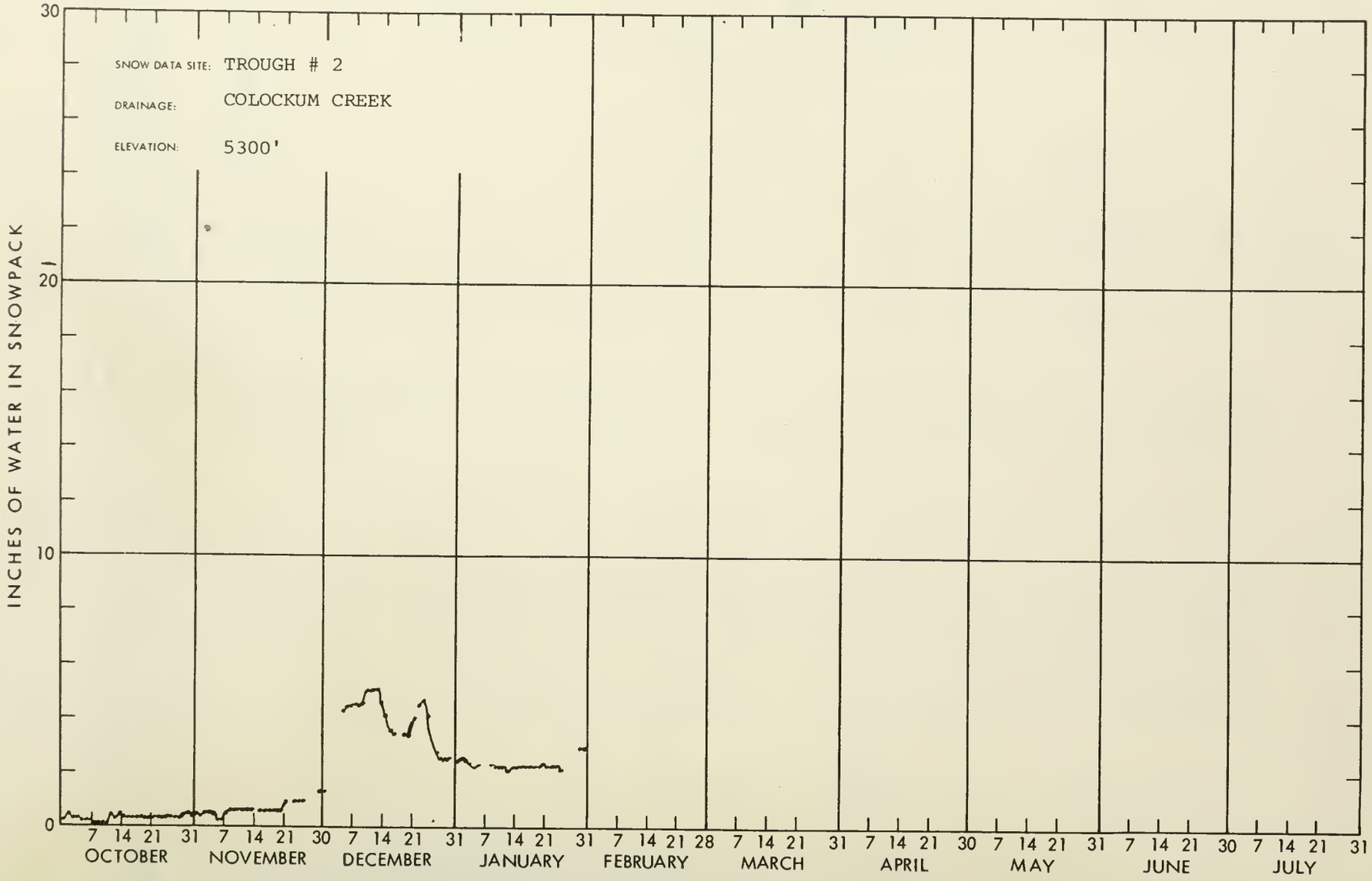
JUNE
JULY

WSF8-X138


SNOW DATA SITE: TROUGH # 2
DRAINAGE: COLOCKUM CREEK
ELEVATION: 5300'
INCHES OF WATER IN SNOWPACK
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10
0
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OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY

SNOW DATA TO FEBRUARY 1, 1981 - APPENDIX 1

SNOW			THIS YEAR			PAST RECORD		
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)		
NAME	Number	Elevation				Last Year	1977	Avg. #
UPPER COLUMBIA DRAINAGE								
PEND OREILLE RIVER								
Benton Meadow	16A02	2344	12/30	0	0.0	1.1	1.5	2.7
			1/30	0	0.0	3.9	1.7	5.2
Benton Spring	16A03	4900	12/30	19	6.3	5.9	2.4	7.5
			1/30	16	5.5	10.9	3.2	13.2
Chewelah	17A04	4925	1/31	15	5.7	9.4	2.0	11.5
Heart Lake Trail	14C10	4800	1/1	9	3.1	6.3	-	9.7
			2/1	15	3.6	13.6	-	12.8
Hoodoo Basin	15C10	6000	1/6	48	16.0	18.8	-	22.2
			2/1	57	20.4	30.0	-	39.7
Hoodoo Creek	15C01	5900	1/6	42	15.2	14.8	-	19.8
			2/1	47	16.6	27.3	-	37.2
Lookout	15B02	5250	1/2	25	8.0	10.4	4.8	13.8
			1/30	32	10.8	20.0	7.0	25.6
Nelson	2D04-Can	3050	12/31	28	10.0	5.9	2.6	7.2*
			1/28	27	9.4	8.8	3.1	11.0*
Schweitzer Bowl	16A06	4500	12/31	30	10.2	11.0	5.0	13.8
			2/1	Plowed Out		18.5	7.0	23.1
Schweitzer Ridge	16A05	6100	12/31	48	19.2	19.7	5.8	21.3
			1/27	49	20.1	38.4	9.8	34.2
Winchester Creek	17A03	2970	1/27	6	1.2	6.8	1.7	8.6
KETTLE RIVER								
Barnes Creek	2B06-Can	5300	12/30	33	9.7	6.5	-	8.3*
			1/31	31	10.0	7.7	10.0	13.5*
Big White Mtn.	2E03-Can	5500	2/1	29	8.1	8.3	7.2	13.7*
Boulder Road	18A02	1450	12/22	12	2.4	0.8	0.9	2.3
			1/29	3	1.2	1.2	1.5	3.9
Butte Creek	18A03	4070	12/22	20	3.3	2.8	1.5	4.0
			1/29	17	3.8	4.2	2.4	6.9
Cabin Creek	18A08	3170	12/22	18	3.7	2.0	1.3	3.7
			1/29	18	4.8	3.7	1.7	9.3
Carmi	2E02-Can	4100	2/1	11	2.4	2.2	2.2	5.1*
Farron # 1	2B02-Can	4000	1/29	23	6.7	7.2	2.5	9.4*
Farron # 2	2B02A-Can	4000	1/29	24	7.0	7.6	2.5	8.3*
Goat Creek	18A04	3595	12/22	16	3.5	2.1	1.3	3.5
			1/29	15	3.7	3.8	2.0	5.6
Monashee Pass	2E02-Can	4500	12/30	24	7.3	3.3	4.2	6.3*
			1/31	22	7.6	4.8	6.8	9.4*
Snow Caps Creek	18A05	2150	12/22	14	3.0	1.2	1.0	2.5
			1/29	7.9	2.6	2.6	1.5	4.1

\# Average based on 1963-1977 Average
* Average for years of record

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO FEBRUARY 1, 1981 - APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
KETTLE RIVER (Cont.)								
Snow Caps Trail	18A06	2720	12/22	16	3.2	1.7	1.1	2.9
			1/29	12	3.8	3.6	1.5	4.8
Summit G.S.	18A07	4600	12/22	13	2.8	1.9	1.1	3.5
			1/29	10	2.2	3.6	1.6	5.9
Trapping Creek Lower	2E05-Can	3050	2/1	8	2.0	1.8	2.2	4.3*
Trapping Creek Upper	2E04-Can	4450	2/1	16	3.4	4.3	4.4	7.3*
COLVILLE RIVER								
Baird	17A06	3215	1/31	6.9	3.1	4.0	2.4	5.5
Carlson	18A09	2885	1/31	Trace		2.7	0.6	3.7
Chewelah	17A04	4925	1/31	15	5.7	9.4	2.0	11.5
Stranger Mountain	17A05	5990	1/31	6	2.7	8.2	0.8	9.6
Togo	18A10	3370	1/31	4	1.9	9.7	0.5	8.6
SPOKANE RIVER								
Above Burke	15B08	4100	1/2	11	3.0	5.0	5.2	9.3
			1/30	16	4.8	10.2	7.0	16.4
4th of July Summit	16B03	3100	1/29	2.6	0.2	4.2	2.3	7.3
Lookout	15B02	5250	1/2	25	8.0	10.4	4.8	13.8
			1/30	32	10.8	20.0	7.0	25.6
Mosquito Ridge	16A04	5110	1/30	46	15.2	18.2	-	24.5
Sherwin	16C01	3200	1/2	0	0.0	1.8	1.9	5.5
			1/30	3.5	0.7	5.9	3.6	10.7
Sunset	15B09	5600	1/29	33	8.0	-	-	27.4
OKANOGAN RIVER								
Aberdeen Lake	1F01A-Can	4300	1/30	8.6	1.9	2.2	2.7	5.1*
Blackwall Peak	2G03-Can	6250	12/31	48	13.7	14.8	4.6	15.7*
			1/29	44	14.9	21.2	7.3	24.3*
Brenda Mine	2F18-Can	4800	12/30	19	4.3	5.0	2.4	6.8*
			1/28	21	5.4	7.2	3.3	9.8*
Brookmere	1C01-Can	3200	12/31	13	3.7	3.9	1.3	3.5*
			1/31	18	4.8	6.1	2.3	7.0*
Enderby	1F04-Can	6250	12/30	65	21.2	13.9	11.5	17.6*
			2/2	66	23.3	17.2	14.6	24.7*
Hamilton Hill	2G06-Can	4900	1/28	17	4.7	10.7	4.1	10.7*
Harts Pass	20A05A	6500	1/30	59	18.8	27.3	9.7	32.7
Isontok Lake	2F11-Can	6300	12/28	3	0.8	2.6	1.4	4.1*
			2/1	5.9	1.2	3.5	1.7	6.2*
Lost Horse Mtn.	2G04-Can	6300	1/30	13	2.8	5.2	3.3	6.9*
Loup Loup	19A07	4650	1/28	17	4.4	6.9	0.4	7.4
McCulloch	2F03-Can	4200	12/29	11	2.8	1.5	1.1	3.3*
			1/25	8.3	2.6	2.5	2.5	4.9*

Average based on 1963-1977 Average
* Average for years of record

USDA SCS-PORTLAND OREGON 1973

SNOW DATA TO FEBRUARY 1, 1981 - APPENDIX 3

SNOW			THIS YEAR			PAST RECORD		
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)		
NAME	Number	Elevation				Last Year	1977	Avg. #
OKANOGAN RIVER (Cont.)								
Missezula Mtn.	2G05-Can	5100	1/27	11	2.4	6.0	2.4	6.9*
Mission Creek	2F05-Can	6000	12/30	22	5.8	4.4	5.3	8.9*
			1/30	24	7.7	6.9	7.7	13.4*
Monashee Pass	2E01-Can	4500	12/30	24	7.3	3.3	4.2	6.3*
			1/31	22	7.6	4.8	6.8	9.4*
Mount Kobau	2F12-Can	5950	12/27	16	3.1	4.5	1.1	3.3*
			1/31	22	5.5	6.7	1.7	8.7*
Muckamuck +	19A09a	6390	1/30	26	7.0	-	0.0	11.4
Mutton Creek No. 1	19A01	5700	1/28	18	4.7	8.5	0.0	10.8
Mutton Creek No. 2SP	19A11SP	6000	1/28	-	4.5	5.7	-	New
Sunday Summit	2G01A-Can	4300	1/29	2	0.4	3.6	1.1	5.2*
New Penticton Res.#2	2F08-Can	5225	1/28	11	2.4	3.5	3.2	6.6*
Oyama Lake	2F19-Can	4400	1/29	8.7	2.2	2.0	2.6	5.4*
Paysayten +	20A28a	4300	1/30	40	12.0	10.5	3.6	14.2
Postill Lake	2F07-Can	4500	1/30	13	3.3	3.2	3.6	5.9*
Rusty Creek	19A03	4000	1/28	13	3.0	5.0	0.2	5.6
Salmon Meadows	19A02	4500	1/28	20	5.5	7.5	0.4	7.7
Silver Star Mountain	2F10-Can	6050	12/28	34	9.8	8.1	6.4	14.1*
			1/31	39	12.2	10.9	9.0	19.1*
Starvation Mountain +	19A10a	6750	1/30	37	10.0	12.5	0.0	13.8
Summerland Reservoir	2F02-Can	4200	12/27	14	3.5	4.1	1.9	4.9*
			1/31	15	3.5	5.6	2.5	7.6*
Touts Coulee	19A06	2845	1/29	9.6	2.6	1.6	0.5	3.1
Trout Creek	2F01-Can	4700	1/28	5.5	1.2	3.9	2.4	5.4*
Vaseux Creek	2F20-Can	4600	1/2	9.1	2.0	2.0	1.4	2.6*
			1/29	12	2.7	3.2	2.2	4.6*
White Rocks Mtn.	2F09-Can	6000	12/30	19	5.4	6.6	-	10.9*
			1/30	27	7.5	10.2	5.3	17.6*
METHOW RIVER								
Harts Pass	20A05A	6500	1/30	59	18.8	27.3	9.7	32.7
Loup Loup	19A07	4650	1/28	17	4.4	6.9	0.4	7.4
Mutton Creek No. 1	19A01	5700	1/28	18	4.7	8.5	0.0	10.8
Mutton Creek No. 2SP	19A11SP	6000	1/28	-	4.5	5.7	-	New
Rusty Creek	19A03	4000	1/28	13	3.0	5.0	0.2	5.6
Salmon Meadows	19A02	4500	1/28	20	5.5	7.5	0.4	7.7
CHELAN LAKE BASIN								
Cloudy Pass +	20A22a	6500	1/30	68	20.4	-	5.6	30.0
Little Meadows +	20A24a	5275	1/30	46	13.8	25.2	6.3	30.7
Lyman Lake +	20A23A	5900	1/31	71	21.3	-	14.8	39.7
Mirror Lake	20A39	5600	1/30	52	14.0	-	-	New
Park Creek Ridge	20A12A	4600	1/30	50	15.5	26.3	7.0	36.9
Rainy Pass	20A09	4780	1/28	41	15.0	22.3	7.7	30.9

\# Average based on 1963-1977 Average
* Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO FEBRUARY 1, 1981 - APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
ENTIAT RIVER								
Blue Creek G.S. +	20B28a	5425	1/30	58	20.3	25.2	-	New
Brief	20B19	1600	1/28	7.8	1.3	5.9	1.0	7.0
Entiat Meadows +	20A33a	4540	1/30	66	23.1	30.6	-	40.0
Entiat River Trail +	20A34a	3325	1/30	34	9.5	14.5	-	20.0
Four Mile Ridge +	20B27a	6800	1/30	50	17.5	21.6	-	30.9
Fox Camp +	20A36a	6510	1/30	104	36.4	36.6	-	44.7
Pope Ridge	20B20	3450	1/28	24	6.6	11.7	1.0	15.2
Pugh Ridge	20A32a	6725	1/30	67	23.5	21.9	-	29.5
Shady Pass	20A37	6200	1/27	33	11.6	17.2	2.7	20.7
Snow Brushy +	20A35a	3910	1/30	47	13.2	20.3	-	30.5
Tommy Creek +	20B21a	4900	1/30	52	18.2	15.6	-	22.5
WENATCHEE RIVER								
Berne Mill Creek	21B23	3170	11/26	4	1.0	1.0	-	4.5
			12/12	21	5.8	5.4	-	7.8
			12/30	17	5.8	8.1	1.8	11.0
			1/14	16	6.1	14.8	2.2	16.2
			1/29	21	6.2	16.8	2.2	21.5
Berne Mill Creek New	21B41SP	3240	11/26	Trace		1.0	-	4.5
			12/30	6	1.9	5.9	1.6	11.6
			1/29	11	2.4	15.8	0.0	20.0
Blewett Pass No. 2	20B02	4270	12/30	0	0.0	4.5	4.6	6.5
			1/27	4.5	0.7	10.2	10.1	13.2
Chiwaukum G.S.	20B16	1810	11/26	Trace		1.0	-	1.5
			12/12	14	3.6	3.1	-	3.2
			12/30	10	1.7	4.4	1.0	4.8
			1/14	6.6	2.8	9.1	1.1	7.0
			1/29	14	3.4	8.9	2.0	9.5
Lake Wenatchee	20B05	1970	11/26	Trace		0.7	-	1.6
			12/12	15	4.0	3.5	-	3.6
			12/30	11	3.1	4.4	1.9	5.9
			1/14	7.6	2.9	9.3	2.4	9.5
			1/29	12	3.2	9.7	2.4	11.8
Leavenworth R.S.	20B17	1127	11/14	0	0.0	0.0	-	0.1
			11/26	0	0.0	0.4	-	0.7
			12/11	8.6	1.6	1.5	-	1.7
			12/28	3.8	1.3	0.9	0.5	3.1
			1/12	0	0.0	4.1	1.1	4.8
			1/29	2.8	0.5	3.8	0.8	5.9
Lyman Lake +	20A23A	5900	1/30	71	21.3	-	14.8	39.7
Merritt	20B18	2140	11/26	Trace		0.8	-	2.3
			12/12	17	4.7	2.4	-	4.8
			12/31	5.2	1.3	3.4	1.8	7.1
			1/14	5.2	2.3	8.8	2.0	11.2
			1/29	10	2.7	10.0	2.2	14.0

\# Average based on 1963-1977 Average

\+ Snow water equivalent estimated from aerial stadia observation

USDA-SCS-PORTLAND OREGON 1973

SNOW DATA TO FEBRUARY 1, 1981 - APPENDIX 5

SNOW			THIS YEAR			PAST RECORD		
DRAINAGE BASIN and/or SNOW COURSE						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
WENATCHEE RIVER (Cont.)								
Stevens Pass	21B01	4070	11/14	8	1.7	-	-	3.6
			11/26	7.5	2.2	3.4	1.0	8.1
			12/12	29	8.8	9.8	2.3	14.7
			12/31	16	6.1	16.1	5.7	21.9
			1/14	16	6.8	25.3	6.9	30.1
			1/29	24	7.0	28.3	6.3	37.3
Stevens Pass Sand Shed	21B45	3700	11/26	2.1	0.5	1.4	-	6.4
			12/12	21	5.6	6.1	-	11.2
			12/31	6.4	2.2	10.0	2.9	15.3
			1/14	5.7	2.4	16.2	3.3	21.8
			1/29	12	2.8	19.0	2.3	26.8
COLOCKUM CREEK								
Colockum Creek Upper	20B22	5300	1/28	9.9	1.1	8.1	0.0	11.7
Colockum Creek Lower	20B23	4300	1/28	16	3.2	9.0	0.0	8.5
Trough # 2	20B25SP	5310	1/28	10	1.0	11.5	0.0	New
SQUILCHUCK CREEK								
Beehive Springs	20B03	4400	1/29	13	2.2	7.1	0.0	6.7
Scout-A-Vista	20B04	3400	1/29	17	3.2	7.0	0.0	6.9
STEMILT CREEK								
Jump Off	20B08	4450	1/28	9.2	1.2	8.4	0.0	7.1
Stemilt Slide	20B06	5000	1/28	14	3.3	11/1	0.0	11.2
Upper Wheeler	20B07	4400	1/28	7.6	1.0	9.1	0.0	8.4
YAKIMA RIVER								
Ahtanum R.S.	21C11	3100	12/29	7.2	2.8	2.8	0.0	3.2
			1/26	7.1	1.3	7.8	0.0	6.1
Blewett Pass No. 2	20B02	4270	12/30	0	0.0	4.5	0.0	6.5
			1/27	4.5	0.7	10.2	0.0	13.2
Bumping Lake Old	21C08	3450	12/12	20	4.1	-	0.0	4.4
			12/31	9.4	3.4	4.1	0.0	6.5
			1/15	7.9	2.8	7.9	0.0	10.4
			1/30	13	4.0	12.8	0.0	13.3
Bumping Lake New	21C36	3400	12/12	22	4.7	-	-	6.5
			12/31	14	4.6	5.3	0.0	8.3
			1/15	13	5.1	7.9	-	14.2
			1/30	19	5.6	14.6	0.0	16.8
Cayuse Pass	21C06	5300	1/7	33	14.3	-	4.3	34.4
			2/1	-	15.8	-	7.9	59.5
Colockum Pass	20B09	5370	1/28	12	2.6	-	0.0	11.8
Cooke Creek	20B10	4123	1/28	4	0.5	-	0.0	5.3
Corral Pass	20B09	5370	2/2	26	9.0	20.0	4.2	-
Green Lake	21C10	6000	1/26	22	11.3	23.4	2.3	19.4

\# Average based on 1963-1977 Average

\+ Snow Water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO FEBRUARY 1, 1981 - APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
YAKIMA RIVER (Cont.)								
Grouse Camp	20B11	5385	1/29	19	5.5	-	0.0	12.3
High Creek	20B12	2930	1/29	6.9	1.7	-	0.0	5.5
Joe Lake +	21B46a	4624	2/1	27	8.4	27.9	13.4	41.8
Lake Cle Elum	21B14M	2200	12/8	18	3.0	-	0.0	2.4
			12/29	6.4	2.2	1.4	0.4	3.9
			1/12	2.6	1.0	4.4	0.8	7.1
			1/28	4.5	0.9	6.2	0.0	8.5
Lemah Creek +	21B47a	3327	2/1	39	12.0	23.7	6.1	31.0
Manashtash	20C01	3935	1/30	8.4	1.4	5.8	0.0	4.3
Morse Lake	21C17	5400	1/29	52	16.0	33.9	3.0	38.9
Nanum	20B13	3875	1/29	12	2.5	-	0.0	7.4
Olallie Meadows	21B02	3625	2/2	14	3.2	16.6	0.8	34.8
Satus Pass	20D01	4030	1/29	11	1.4	6.6	0.0	8.9
Stampede Pass SP	21B10	3860	12/2	28	3.1	2.9	-	7.5
			12/18	15	5.2	9.3	-	14.0
			1/2	16	5.9	10.3	3.6	17.4
			1/15	12	4.8	18.8	4.2	24.8
			2/2	23	6.7	18.3	2.0	31.5
Trail Creek	20B14	3360	1/28	2.9	0.4	-	0.0	2.9
Tunnel Avenue	21B08	2450	12/9	26	4.2	-	-	5.8
			12/29	9	3.1	5.2	1.0	8.4
			1/13	5.2	2.0	12.0	2.6	13.7
			1/28	12	2.2	13.0	1.2	17.8
Van Epps Pass +	20B26a	5925	2/1	59	18.3	22.6	10.3	39.4
Walters Flat	20B15	3360	1/29	12	3.1	-	0.0	6.5
Waptus Lake +	21B49a	3024	2/1	24	7.4	17.8	6.9	32.2
White Pass (E. Side)	21C28	4500	12/11	18	4.6	-	-	7.4
			12/30	5.3	2.6	4.4	-	10.5
			1/14	3.4	1.2	10.1	-	14.4
			1/29	12	3.0	15.2	0.0	18.4
AHTANUM CREEK								
Ahtanum R.S.	21C11	3100	12/29	7.2	2.8	2.8	0.0	3.2
			1/26	7.1	1.3	7.8	0.0	6.1
Green Lake	21C10	6000	1/26	22	11.3	23.4	2.3	19.4
LOWER COLUMBIA DRAINAGE								
ASOTIN CREEK								
Spruce Springs	17C04	5700	1/26	14	5.1	13.8	2.4	18.2
MILL CREEK								
Homestead	17C01	4030	1/27	3.5	0.5	6.5	0.6	7.2
Martin Springs	17C02	4400	1/27	6.4	1.1	8.9	1.6	10.3
High Ridge	18D19	4150	1/28	26	7.5	16.1	4.0	17.7

Average based on 1963-1977 Average
+ Snow water equivalent estimated from aerial stadia observation

USDA SCS-PORTLAND OREGON 1973

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SNOW DATA TO FEBRUARY 1, 1981 - APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
KLICKITAT RIVER								
Satus Pass	20D01	4030	1/29	11	1.4	6.6	0.0	8.9
COWLITZ RIVER								
Cayuse Pass	21C06	5300	1/7	33	14.3	-	4.3	34.4
			2/1	-	15.8	-	7.9	59.5
White Pass (E. Side)	21C28	4500	12/11	18	4.6	-	-	7.4
			12/30	5.3	2.6	4.4	-	10.5
			1/14	3.4	1.2	10.1	-	14.4
			1/29	12	3.0	15.2	0.0	18.4
PUGET SOUND DRAINAGE								
WHITE RIVER								
Cayuse Pass	21C06	5300	1/7	33	14.3	-	4.3	34.4
			2/1	-	15.8	-	7.9	59.5
Corral Pass	21B13	6000	2/2	26	9.0	20.0	4.2	-
Morse Lake	21C17	5400	1/29	52	16.0	33.9	3.0	38.9
GREEN RIVER								
Airstrip	21B24	1800	12/1	4.6	0.4	0.0	-	0.6
			2/2	0	0.0	4.8	0.0	5.6
Charley Creek	21B25	1200	12/1	Trace		0.0	-	0.1
			2/2	0	0.0	1.5	0.0	1.3
Cougar Mountain	21B42SP	3200	2/2	12	2.4	9.3	0.0	17.3
Grass Mtn. No. 2	21B27	2900	12/1	8.4	1.3	0.0	-	2.1
			2/2	9.5	2.1	10.1	0.0	15.2
Grass Mtn. No. 3	21B28	2100	12/1	5.2	0.8	0.0	-	0.5
			2/2	1.2	0.6	3.8	0.0	5.2
Lester Creek	21B29	3100	12/1	18	2.1	3.2	-	2.7
			2/2	16	3.3	13.4	2.0	17.5
Lynn Lake	21B50	4000	12/1	11	1.5	0.0	-	2.7
			2/2	15	3.1	8.7	0.0	18.2
Sawmill Ridge	21B31	4700	12/1	21	2.9	3.7	-	5.6
			2/2	21	6.3	17.8	3.7	27.5
Snowshoe Butte	21B43SP	5000	2/2	21	6.6	29.1	3.5	40.8
Stampede Pass SP	21B10	3860	12/2	28	3.1	2.9	-	7.5
			12/18	15	5.2	9.3	-	14.0
			1/2	16	5.9	10.3	3.6	17.4
			1/15	12	4.8	18.8	4.2	24.8
			2/2	23	6.7	18.3	2.0	31.5
Twin Camp	21B30	4100	12/1	14	1.8	2.8	-	3.4
			2/2	13	2.7	13.1	1.7	18.4
SNOQUALMIE RIVER								
Olallie Meadows	21B02	3625	2/2	14	3.2	16.6	0.8	34.8

Average based on 1963-1977 Average

USDA SCS-PORTLAND OREGON 1973

SNOW DATA TO FEBRUARY 1, 1981 - APPENDIX 8

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
SKYKOMISH RIVER								
Stevens Pass	21B01	4070	11/14	8	1.7	-	-	3.6
			11/26	7.5	2.2	3.4	-	8.1
			12/12	29	8.8	9.8	2.3	14.7
			12/31	16	6.1	16.1	5.7	21.9
			1/14	16	6.8	25.3	6.9	30.1
			1/29	24	7.0	28.3	6.3	37.3
Stevens Pass Sand Shed	21B45	4070	11/26	2.1	0.5	1.4	-	6.4
			12/12	21	5.6	6.1	-	11.2
			12/31	6.4	2.2	10.0	2.9	15.3
			1/14	5.7	2.4	16.2	3.3	21.8
			1/29	12	2.8	19.0	2.3	26.8
SKAGIT RIVER								
Beaver Creek Trail	21A04	2200	1/29	4.8	0.8	7.9	0.5	12.2
Beaver Pass	21A01	3680	1/29	14	3.7	15.5	1.4	24.4
Brown Top Ridge +	21A28a	6000	1/28	73	26.6	34.0	13.6	48.0
Cloudy Pass +	20A22a	6500	1/30	68	20.4	-	5.6	30.0
Devils Park	20A04	5900	1/28	52	18.4	26.8	8.7	34.0
Freezeout Creek Trail	20A01	3500	1/28	2.8	0.5	7.5	0.9	11.5
Freezeout Meadows New	20A38	5000	1/28	26	9.0	15.6	7.4	28.2
Granite Creek	21A29A	3500	1/29	16	3.9	10.2	3.1	16.3
Harts Pass	20A05A	6500	1/30	59	18.8	27.3	9.7	34.5
Klesilkwa	3D03A-Can	3700	2/2	0.8	0.1	5.0	0.4	9.7*
Lyman Lake	20A23A	5900	1/30	71	21.3	-	14.8	39.7
Meadow Cabins	20A08	1900	1/29	0.5	Trace	4.2	0.0	6.9
New Hozomeen Lake	21A30	2800	1/28	4.5	0.8	7.6	0.8	10.5
New Tashme	3D01A-Can	2500	2/1	3.9	0.7	5.7	2.0	8.5*
Rainy Pass	20A09	4780	1/28	41	15.0	22.3	7.7	30.9
Thunder Basin	20A07	4200	1/30	8.3	1.0	8.2	3.0	17.4
BAKER RIVER								
Dock Butte +	21A11A	3800	12/7	29	9.0	7.0	2.0	10.1
			1/2	10	4.0	12.0	4.0	28.7
			2/2	10	4.0	24.0	4.0	47.4
Easy Pass +	21A07A	5200	12/7	51	15.0	9.0	2.0	10.1
			1/2	46	18.0	22.0	10.0	32.8
			2/2	47	16.0	34.0	11.0	51.7
Jasper Pass	21A06A	5400	12/7	73	22.0	10.0	2.0	18.2
			1/2	60	24.0	29.0	19.0	44.6
			2/2	66	23.0	42.0	14.0	69.3
Marten Lake	21A09A	3600	12/7	52	16.0	6.0	2.0	15.0
			1/2	24	8.0	14.0	11.0	36.6
			2/2	33	11.0	34.0	14.0	55.4
Mt. Blum +	21A18a	5800	12/7	49	15.0	4.0	4.0	11.1
			1/2	36	14.0	18.0	11.0	33.1
			2/2	47	16.0	26.0	11.0	48.4
Panorama New	21A26	4300	2/1	Not Measured		38.5	7.5	48.7

\+ Snow water equivalent estimated from aerial stadia observation
\# Average based on 1963-1977 Average
* Average for Years of record

SNOW DATA TO FEBRUARY 1, 1981 - APPENDIX 9

SNOW			THIS YEAR			PAST RECORD		
DRAINAGE BASIN and/or SNOW COURSE						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
BAKER RIVER (Cont.)								
Rocky Creek	21A12A	2100	12/7	30	9.0	3.0	0.0	3.3
			1/2	0	0.0	4.0	0.0	14.4
			2/2	6	2.0	13.0	0.0	24.7
Schreibers Meadow	21A10A	3400	12/7	28	8.0	4.0	1.0	8.6
			1/2	10	4.0	11.0	4.0	26.0
			2/2	8	3.0	22.0	2.0	41.0
S. F. Thunder Creek +	21A14A	2200	12/7	12	4.0	-	0.0	0.8
			1/2	0	0.0	3.0	0.0	6.0
			2/2	4	2.0	6.0	0.0	10.0
Watson Lakes	21A08A	4500	12/7	52	16.0	7.0	2.0	10.0
			1/2	11	4.0	14.0	10.0	29.4
			2/2	24	8.0	25.0	9.0	44.4
NOOKSACK RIVER								
Glacier Creek	21A23	3700	11/25	0	0.0	-	0.0	6.9
			12/28	0	0.0	-	0.9	7.4
			1/30	0	0.0	4.9	0.0	19.7
Panorama New	21A26	4300	2/1	Not Measured		38.5	7.5	48.7
OLYMPIC PENINSULA								
DUNGENESS RIVER								
Deer Park	23B04	5200	1/30	5	0.8	10.4	0.0	15.2
MORSE CREEK								
Cox Valley	23B14	4500	2/2	10.9	2.3	18.6	0.0	29.1
ELWHA RIVER								
Hurricane	23B03	4500	1/31	6.5	0.7	5.9	0.0	16.4

\+ Snow water equivalent estimated from aerial stadia observation
\# Average based on 1963-1977 Average

USDA SCS-PORTLAND OREGON 1973

PRECIPITATION STORAGE GAGES

Amount of precipitation in inches that has accumulated since the previous measurement.

BIG BOULDER CREEK

8/1/79	Recharge
11/1/79	1.5
12/1/79	2.9
1/4/80	18.2
2/1/80	5.5
3/1/80	5.8
4/1/80	11.3
5/1/80	1.8
10/1/80	Recharge
11/1/80	1.8
12/1/80	11.0
1/1/81	15.4

BUMPING RIDGE

10/1/79	Recharge
11/1/79	11.4
12/1/79	6.0
1/3/80	13.6
2/1/80	11.2
3/1/80	8.7
4/1/80	3.6
5/1/80	3.2
7/1/80	5.1
8/1/80	0.7
9/1/80	2.1
10/1/80	Recharge
11/1/80	0.3
12/1/80	12.7
1/1/81	11.4
1/31/81	0.4

CARNATION 15E

8/7/79	Recharge
9/1/79	0.64
10/2/79	3.84
11/1/79	7.89
12/4/79	9.37
1/4/80	27.90
3/4/80	21.30
4/3/80	13.42
5/1/80	7.03
6/5/80	5.32
7/1/80	4.26
8/4/80	1.50
9/6/80	7.88
10/2/80	13.42
11/7/80	23.64
12/2/80	39.62
1/6/81	59.85

CEDAR FALLS 4SE

7/31/79	Recharge
9/4/79	2.56
10/1/79	1.06
11/2/79	7.88
12/6/79	7.24
1/2/80	17.47
3/5/80	18.53
4/2/80	14.48
5/5/80	6.38
6/2/80	4.26
6/30/80	2.99
7/28/80	2.55
9/3/80	4.68
10/3/80	6.60
11/3/80	3.19
12/1/80	15.76
1/6/81	17.04

CEDAR FALLS 5SE

8/3/79	Recharge
9/5/79	2.13
10/1/79	0.42
11/2/79	5.76
12/3/79	2.98
1/3/80	15.97
3/5/80	14.06
5/2/80	12.36
6/2/80	4.49
7/1/80	3.19
7/29/80	0.64
9/3/80	3.62
10/3/80	3.41
11/3/80	1.49
1/6/81	22.15

CEDAR FALLS 7SE

8/3/79	Recharge
9/4/79	3.41
10/1/79	1.28
11/2/79	7.25
12/3/79	5.32
1/3/80	21.30
4/2/80	30.67
5/5/80	6.61
6/2/80	3.62
6/30/80	2.55
7/30/80	1.50
9/2/80	11.72
10/1/80	3.41

CEDAR FALLS 7SE (Cont.)

11/3/80	3.83
12/1/80	15.12
1/6/81	15.98

CEDAR FALLS 7SSE

8/3/79	Recharge
9/4/79	3.40
10/1/79	1.07
11/2/79	7.88
12/6/79	8.31
1/2/80	19.81
3/5/80	21.08
4/2/80	13.64
5/5/80	7.25
6/2/80	4.26
6/30/80	3.19
7/30/80	1.28
9/3/80	5.75
10/3/80	4.47
11/3/80	3.20
12/1/80	14.69
1/6/81	18.75

CEDAR FALLS 8SE

7/31/79	Recharge
9/4/79	2.55
10/1/79	0.64
11/2/79	6.18
12/3/79	3.83
1/3/80	17.04
3/5/80	15.55
4/7/80	10.86
5/2/80	3.20
6/2/80	4.05
6/30/80	2.98
7/29/80	0.64
9/3/80	4.05
10/3/80	4.04
11/3/80	1.92
12/1/80	13.21
1/6/81	14.05

CEDAR FALLS 10SE

8/3/79	Recharge
9/4/79	1.07
10/1/79	1.28
11/2/79	8.30
12/6/79	9.59
1/3/80	21.30

PRECIPITATION STORAGE GAGES (Continued)

CEDAR FALLS 10SE (Cont.)

5/5/80	40.68
6/2/80	4.26
6/30/80	3.41
7/30/80	0.64
9/2/80	6.18
10/3/80	4.26
11/3/80	4.47
1/6/81	34.08

CONSULTANT CREEK

8/7/79	Recharge
9/1/79	1.34
10/2/79	4.28
11/1/79	7.88
12/5/79	11.02
1/4/80	10.58
3/4/80	34.87
5/1/80	21.15
6/5/80	8.32
7/1/80	5.40
8/4/80	4.28
9/6/80	8.56
10/2/80	6.30
11/7/80	8.77
1/6/81	33.30

DRY CREEK

8/8/79	Recharge
9/1/79	1.35
10/2/79	4.72
11/1/79	8.10
12/4/79	8.10
1/4/80	24.52
3/4/80	20.02
4/3/80	12.83
5/1/80	7.42
6/5/80	7.20
7/1/80	4.04
8/5/80	3.38
9/6/80	10.35
10/2/80	5.85
11/7/80	8.78
12/2/80	15.76

FISH LAKE

6/27/79	Recharge
9/26/79	6.25
8/5/80	57.75
9/4/80	3.12

FROZEN MTN.

8/8/79	Recharge
9/1/79	0.45
10/2/79	4.51
11/1/79	9.67
12/5/79	11.48
1/4/80	31.50
3/4/80	25.66
4/3/80	15.52
5/1/80	8.10
6/5/80	5.62
7/1/80	4.96
8/5/80	2.70
9/6/80	10.80
10/2/80	6.52
11/7/80	11.26

HARTS PASS

10/24/79	Recharge
9/23/80	36.8

LESTER 5NNE

7/31/79	Recharge
9/4/79	3.41
10/2/79	1.07
11/2/79	5.33
6/4/80	57.93
7/1/80	4.05
7/28/80	1.28
9/2/80	6.60
10/1/80	3.41
11/4/80	4.26
1/7/81	28.76

LESTER 7NNW

8/1/79	Recharge
9/4/79	3.62
10/2/79	1.50
11/2/79	5.54
5/6/80	62.83
6/3/80	2.34
6/30/80	2.98
7/31/80	0.64
9/3/80	4.90
10/3/80	3.41
11/4/80	4.69
1/7/81	31.74

LESTER 8NNW

8/1/79	Recharge
9/4/79	3.19
10/2/79	1.71
11/2/79	5.54
12/3/79	5.75
1/3/80	21.72
5/6/80	32.17
6/3/80	2.34
6/30/80	2.77
7/31/80	0.21
9/3/80	4.68
10/3/80	4.26
11/4/80	4.05
1/7/81	30.67

LESTER 8N

8/1/79	Recharge
9/5/79	2.77
10/2/79	1.71
11/2/79	5.32
6/6/80	65.18
6/30/80	3.41
7/31/80	0.42
9/3/80	5.54
10/3/80	5.32
11/4/80	3.62
1/7/81	31.52

LESTER 10NNW

7/31/79	Recharge
9/4/79	4.04
10/1/79	0.86
11/2/79	2.98
12/3/79	9.37
1/3/80	22.36
3/5/80	18.96
5/2/80	15.76
6/6/80	4.48
6/30/80	3.19
7/28/80	0
9/3/80	4.90
10/3/80	5.12
11/3/80	3.62
12/1/80	15.55
1/7/81	17.69

PRECIPITATION STORAGE GAGES (Continued)

LESTER 11NW

8/1/79	Recharge
9/5/79	2.77
10/1/79	1.28
11/2/79	5.54
12/3/79	5.12
1/3/80	19.59
3/5/80	16.62
4/4/80	9.37
5/2/80	4.90
6/6/80	4.89
7/1/80	3.19
7/29/80	0.64
9/3/80	4.48
10/3/80	4.26
11/3/80	2.13
12/1/80	14.06
1/7/81	15.54

LYMAN LAKE

10/1/79	Recharge
11/1/79	6.3
12/1/79	2.6
1/4/80	16.2
2/1/80	9.2
3/1/80	6.6
4/1/80	1.1
5/1/80	9.3
6/1/80	2.1
8/1/80	0.4
9/1/80	5.4
9/29/80	4.3
10/1/80	Recharge
11/1/80	2.5

MIDDLE FORK TAYLOR

8/10/79	Recharge
9/4/79	2.13
10/1/79	2.34
11/5/79	9.38
12/1/79	4.90
1/3/80	20.02
3/5/80	22.58
5/2/80	16.41
6/2/80	5.96
6/30/80	3.41
8/1/80	2.98
9/2/80	5.75
10/3/80	4.90
11/3/80	6.18
12/1/80	12.36
1/6/81	17.68

MONTE CRISTO

11/2/79	Recharge
10/31/80	115.25

MORSE LAKE

10/1/79	Recharge
11/1/79	8.5
12/1/79	5.2
1/4/80	20.9
2/1/80	7.6

Battery Bad

MT INDEX

8/8/79	Recharge
9/1/79	0
10/2/79	5.18
11/1/79	8.78
12/5/79	9.68
1/4/80	28.12
3/4/80	22.50
5/1/80	22.95
6/5/80	6.98
7/1/80	5.18
8/5/80	3.15
9/6/80	10.57
10/2/80	6.98
11/7/80	10.58
1/6/81	40.50

NORTH FORK TAYLOR

8/10/79	Recharge
9/1/79	2.77
10/1/79	2.77
11/5/79	6.17
12/1/79	4.90
3/5/80	34.08
4/2/80	8.95
5/2/80	5.11
6/2/80	6.39
6/30/80	3.41
8/1/80	1.92
9/2/80	4.47
10/3/80	4.26
11/3/80	4.26
12/1/80	12.14
1/6/81	14.91

PARK CREEK RIDGE

10/1/79	Recharge
11/1/79	4.8
12/1/79	2.2
1/4/80	22.9
2/1/80	8.6
3/1/80	8.1
4/1/80	5.6
5/1/80	3.0
5/30/80	1.9
7/1/80	2.3
8/1/80	0.7
9/1/80	0.6
9/11/80	1.7
9/13/80	Recharge
10/1/80	0.7
11/1/80	1.6
12/1/80	14.0
1/1/81	16.0
1/31/81	3.0

PORT ANGELES 11S

8/20/79	Recharge
9/1/80	51.39

RUSTY CREEK

1/29/80	
2/27/80	1.0
3/27/80	0.70
4/25/80	0.30
5/28/80	0.50
6/26/80	2.75
7/29/80	1.0
8/26/80	0.5
9/25/80	2.38
10/27/80	0
11/25/80	1.62
12/23/80	3.25
1/28/81	2.75

SHERMAN PASS

9/27/79	Recharge
10/1/80	29.35

SPRUCE SPRINGS

Gage Vandalized

PRECIPITATION STORAGE GAGES (Continued)

SKYKOMISH 7½W

8/9/79	Recharge
9/1/79	0.42
10/2/79	4.05
11/1/79	9.59
6/5/80	111.40
7/1/80	4.68
8/6/80	2.98
9/6/80	10.22
10/2/80	8.52
11/7/80	12.99

SURPRISE LAKES

10/1/79	Recharge
11/1/79	4.5
12/1/79	6.3
1/4/80	20.4
2/1/80	14.5
3/1/80	15.0
4/1/80	36.1
10/1/80	Recharge
11/1/80	1.0
12/1/80	16.4

SWAUK PASS

Fall/1979	Recharge
12/26/79	7.87
1/24/80	2.25
2/26/80	4.50
3/25/80	2.25
9/30/80	Recharge
12/17/80	6.75
12/30/80	2.81
1/27/81	1.69

TAYLOR CREEK

7/30/79	Recharge
9/4/79	2.13
10/1/79	1.71
11/5/79	6.39
12/1/79	4.47
1/3/80	15.12
3/5/80	15.13
4/2/80	7.66
5/2/80	4.68
6/2/80	3.62
6/30/80	2.34
8/1/80	2.14
9/2/80	3.62
10/3/80	3.84
11/3/80	3.20
12/1/80	11.50
1/6/81	11.50

TROUGH # 2

10/1/79	Recharge
11/1/79	2.3
12/1/79	3.3
1/3/80	3.9
2/1/80	4.8
3/2/80	5.9
4/1/80	2.0
5/2/80	2.6
7/1/80	3.8
8/1/80	0.2
9/1/80	0.7
10/1/80	Recharge
11/1/80	1.1
12/1/80	3.9
1/1/81	6.3
1/30/81	2.8

UPPER WHEELER

1/5/80	
1/30/80	3.9
3/1/80	6.9
3/31/80	0.6
4/30/80	1.6
5/31/80	2.2
7/4/80	0.7
7/31/80	-0.95
8/28/80	0.05
10/1/80	1.15
10/31/80	0.6
11/28/80	4.6
12/30/80	7.8
1/28/80	2.2

YELLOW CREEK

11/1/79	Recharge
12/4/79	7.88
1/4/80	17.10
3/4/80	13.27
4/3/80	11.25
5/1/80	6.08
6/2/80	7.42
7/1/80	3.60
8/4/80	4.50
9/6/80	6.98
10/2/80	4.50
11/7/80	7.42
12/2/80	10.12
1/6/81	12.60

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Ministry of the Environment, Water Investigations Branch, Victoria, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
- Corps of Engineers

U. S. Department of Agriculture
- Forest Service

U. S. Department of Commerce
- NOAA, National Weather Service

U. S. Department of the Interior
- Bonneville Power Administration
- Bureau of Reclamation
- Geological Survey
- National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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United States
Department of
Agriculture

Soil
Conservation
Service

Spokane,
Washington

Water Supply Outlook for Washington

as of MARCH 1, 1981 . . .

in cooperation with

Department of Ecology
State of Washington

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TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SNOW SURVEYORS MAKING SPECIAL MEASUREMENTS OF THE SNOWPACK NEAR MT. ST. HELENS VOLCANO, WASHINGTON, APRIL, 1980.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
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Washington	360 U. S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W, Calgary, Alberta T3C 1A6.

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

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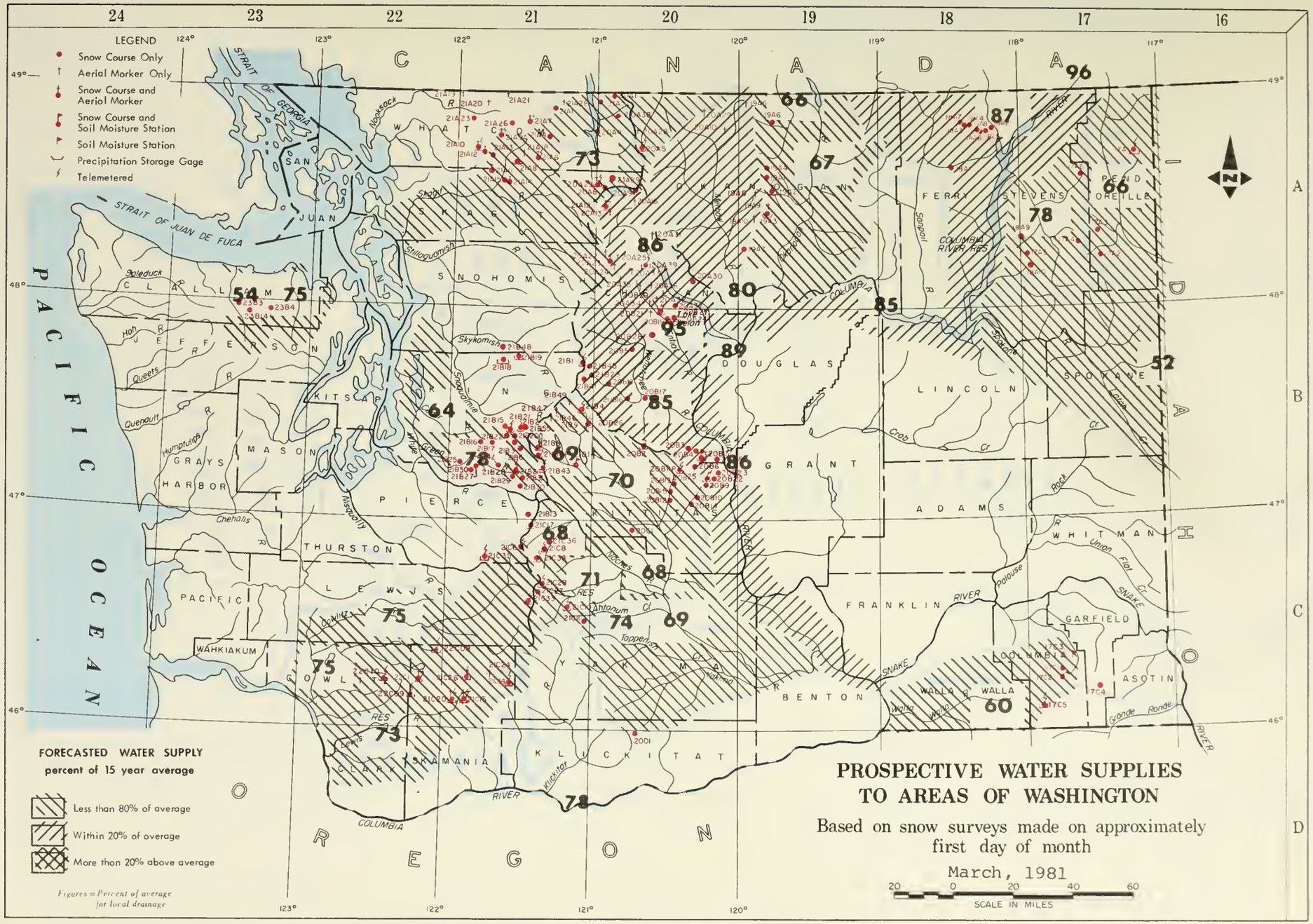
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percent of 15 year average
Less than 80% of average
Within 20% of average
More than 20% above average
Figures = Percent of average for local drainage
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CANADA
OREGON
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
SAN JUAN ISLANDS
WHATCOM
SKAGIT
SNOHOMISH
KING
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Walla Walla
Klickitat
Cheholis
Humptulips
Hoh
Queets
Quinault
Soleduck
Antanum Cr
Tieton
Naches
Ahtanum Cr
Tucannon
Pataha
Alkali Cr
Cr
Cr

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	1 A1SP	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Calville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Tiger	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanagan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2SP	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Tauts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5SP	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23SP	18	31N	16E	5900
Park Creek Flat	20A13a	19	34N	16E	2220
Park Creek Ridge	20A12SP	18	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9SP	21	35N	17E	4780
Safety Harbor	20A30a	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Mirror Lake	20A39	30	31N	18E	5600
Entiat River					
Blue Creek G.S.	20B28a	19	28N	18E	5425
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4540
Entiat River Trail	20A34a	2	29N	17E	3325
Four Mile Ridge	20B27a	15	28N	19E	6800
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	3540
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540
Pugh Ridge	20A32a	34	30N	18E	6725
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3910
Tommy Creek	20B21a	10	28N	18E	4900
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	3170
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2 SP	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1SP	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough 2	20B25SP	10	20N	20E	5310
Colockum Creek					
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	2400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7SP	30	21N	20E	4400
Yakima River					
Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	21B9SP	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38SP	9	15N	12E	4600
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Fish Lake	21B4SP	28	24N	14E	3371
Green Lake	21C10SP	3	12N	13E	6000
Grouse Camp	20B11SP	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17SP	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8P	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28SP	2	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Touchet River					
Couse	17C3m	2	9N	40E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Touchet No. 2	17C5SP	6	7N	40E	5530
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
Lewis River					
Lone Pine Shelter	21C26SP	8	9N	7E	3800
Marble Mountain	22C09SP	26	8N	5E	3200
Plains of Abraham	22C1SP	35	9N	5E	4400
Spencer Meadow	21C20SP	16	8N	7E	3400
Surprise Lakes	21C13SP	14	7N	8E	4250
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Pigtail Peak	21C33SP	11	13N	11E	5900
Potato Hill	21C14SP	36	10N	10E	4500
Ryan Lake	22C08SP	9	10N	6E	3280
Sheep Canyon	22C10SP	12	8N	4E	4920

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Paradise Park (New)	21C35SP	13	15N	8E	5500
White River					
Corral Pass	21B13SP	30	18N	11E	6000
Green River					
Airstrip	21B24P	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B5C	22	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10SP	25	21N	11E	3860
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16P	31	22N	9E	2500
Mt. Washington	21B15P	8	22N	9E	3000
Rex River	21B17P	11	21N	9E	2400
South Fork Cedar	21B6P	24	21N	10E	3000
Tinkham Creek	21B20P	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2P	19	22N	11E	3625
South Fork Tolt	21B18P	26	26N	9E	1900
Olallie Meadows East	21B55SP	20	22N	11E	8700
Skykomish River					
Lake Elizabeth	21B19P	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows (New)	20A38	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	20A7	19	40N	14E	2800
Thunder Basin	21A30	10	35N	14E	4200
Baker River					
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AP	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	2384	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	31	29N	6W	4500
Elwha River					
Hurricane	2383	36	29N	7W	4500

LEGEND

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course And Aerial Marker
21A7M	Snow Course And Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course And Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow

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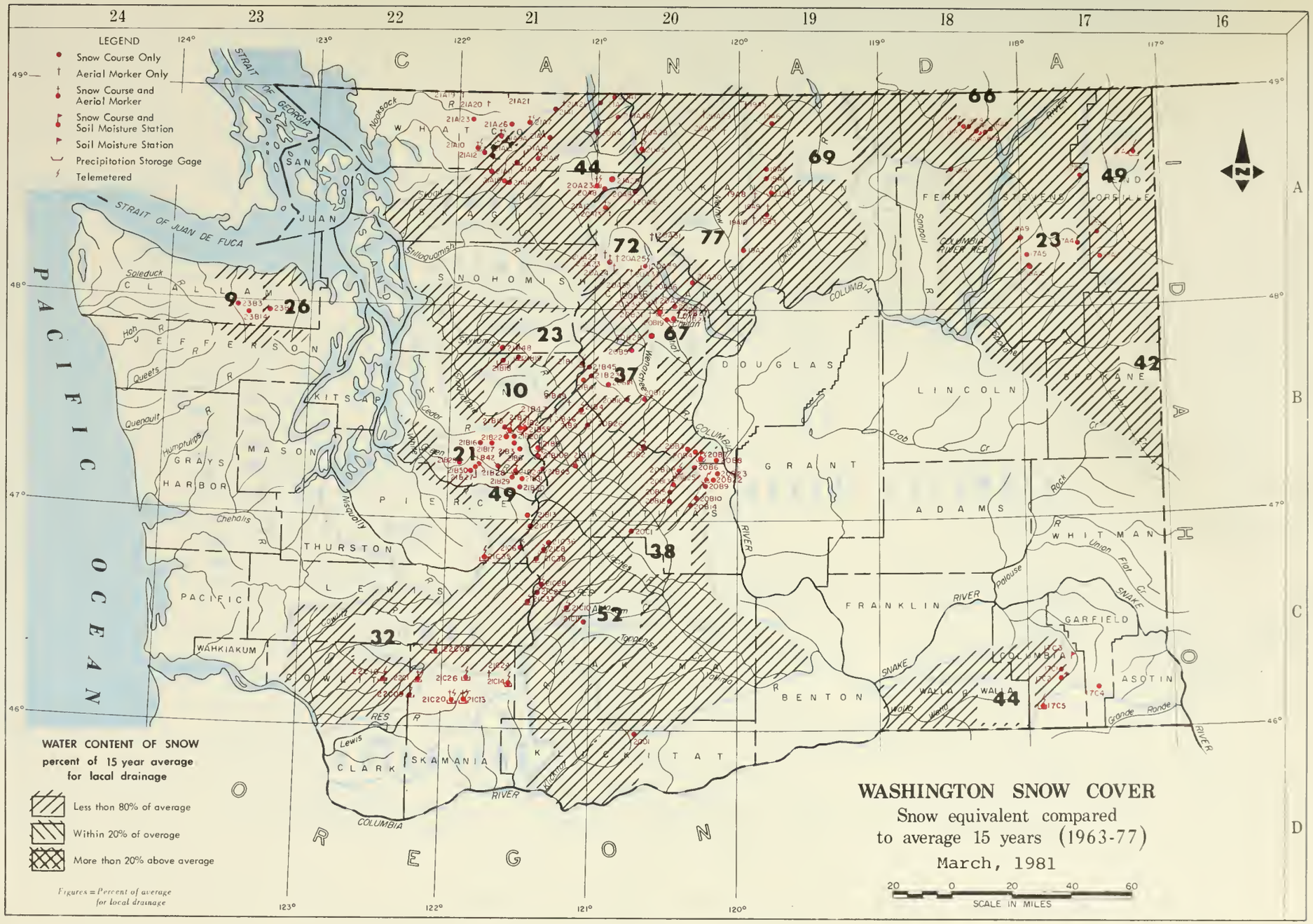


INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	1 A1SP	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Corlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stronger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2SP	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5SP	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelon Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23SP	18	31N	16E	5900
Park Creek Flat	20A13a	19	34N	16E	2220
Park Creek Ridge	20A12SP	18	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9SP	21	35N	17E	4780
Safety Harbor	20A30a	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Mirror Lake	20A39	30	31N	18E	5600
Entiat River					
Blue Creek G.S.	20B28a	19	28N	18E	5425
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4540
Entiat River Trail	20A34a	2	29N	17E	3325
Four Mile Ridge	20B27a	15	28N	19E	6800
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	3540
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540
Pugh Ridge	20A32a	34	30N	18E	6725
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3910
Tommy Creek	20B21a	10	28N	18E	4900
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	3170
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2SP	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1SP	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough 2	20B25SP	10	20N	20E	5310
Colockum Creek					
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Visto	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7SP	30	21N	20E	4400
Yakimo River					
Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	21B9SP	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38SP	9	15N	12E	4600
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Fish Lake	21B4SP	28	24N	14E	3371
Green Lake	21C10SP	3	12N	13E	6000
Grouse Camp	20B11SP	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17SP	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Troil Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8P	13	21N	11E	2450
Von Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28SP	2	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Touchet River					
Couse	17C3m	2	9N	40E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Tauchet No. 2	17C5SP	6	7N	40E	5530
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
Lewis River					
Lone Pine Shelter	21C26SP	8	9N	7E	3800
Marble Mountain	22C09SP	26	8N	5E	3200
Plains of Abraham	22C1SP	35	9N	5E	4400
Spencer Meadow	21C20SP	16	8N	7E	3400
Surprise Lakes	21C13SP	14	7N	8E	4250
Cowlitz River					
Coyuse Pass	21C6	15	16N	10E	5300
Pigtail Peak	21C33SP	11	13N	11E	5900
Patato Hill	21C14SP	36	10N	10E	4500
Ryan Lake	22C08SP	9	10N	6E	3280
Sheep Canyon	22C10SP	12	8N	4E	4920

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Paradise Park (New)	21C35SP	13	15N	8E	5500
White River					
Corral Pass	21B13SP	30	18N	11E	6000
Green River					
Airstrip	21B24P	18	20N	11E	1800
Chorley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B5C	22	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stompede Pass	21B10SP	25	21N	11E	3860
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16P	31	22N	9E	2500
Mt. Washington	21B15P	8	22N	9E	3000
Rex River	21B17P	11	21N	9E	2400
South Fork Cedar	21B6P	24	21N	10E	3000
Tinkham Creek	21B20P	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2P	19	22N	11E	3625
South Fork Tolt	21B18P	26	26N	9E	1900
Olallie Meadows East	21B55SP	20	22N	11E	8700
Skykomish River					
Lake Elizabeth	21B19P	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows (New)	20A38	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	20A7	19	40N	14E	2800
Thunder Basin	21A30	10	35N	14E	4200
Baker River					
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Morten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10Af	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	31	29N	6W	4500
Elwha River					
Hurricane	23B3	36	29N	7W	4500

LEGEND

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course And Aerial Marker
21A7M	Snow Course And Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course And Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow

WATER SUPPLY OUTLOOK

State of Washington

March 1, 1981

The water supply situation has not changed appreciably from that which was reported last month. The forecasts have been reworked and ended up practically the same. The snowpack has generally improved and precipitation was excellent; but this did not help us very much. To the north, in British Columbia, where conditions were better on the first of February; they are still better as of the first of March, but they have deteriorated a small amount. We still expect near normal water supplies from British Columbia, and near adequate water supplies in Washington.

SNOW COVER

When comparing our 1981 snowpack to the past records, we do not have anywhere near a normal situation; but, generally speaking, we have better snowpacks than was experienced in 1977 - our last big drought year. In the Upper Columbia Basin of Washington and tributary areas, the snowpack ranges from 23 percent of normal to a high of 77 percent. These same snowpacks ranged from 11 to 41 percent in 1977. Along the Lower Columbia, the snowpack ranges from 32 to 44 percent this year; with one watershed reporting zero. These same snow courses reported 8 to 14 percent in 1977. On the Puget Sound Drainage, the watersheds have reported a range from zero for the Cedar River to 49 percent of average on the White. In 1977, these watersheds ranged from 4 percent of normal on the Cedar to 44 percent on the Nooksack. A big improvement occurred on the Olympic Peninsula where we now have a snowpack that ranges from 9 to 26 percent of normal. In 1977, the snowpack was 9 to 10 percent.

RESERVOIRS

The one "shining star" in the water supply picture for Washington is the excellent reservoir storage. Our power reservoirs all have well above average amounts of water in storage with Franklin D. Roosevelt Lake, 80 percent above average; Chelan Lake, 86 percent; and Ross Lake, 44 percent. The irrigation reservoirs are, likewise, in excellent shape; with only Lake Cle Elum in the Yakima Drainage reporting a subnormal amount of water in storage. Over all, the irrigation reservoirs have 20 percent greater than average amounts of water in storage. These reservoirs will undoubtedly fill with the spring runoff.

PRECIPITATION

The rainfall picture this past month was another turn around. While January rainfall was all subnormal, February precipitation was well above average. The poorest was the Pend Oreille-Spokane Drainage - only 9 percent above average; while the best was North Central Washington - 95 percent greater. The November through February winter precipitation, as now accumulated and reported by the National Weather Service, ranges near average for all drainage divisions reported for the area. The Columbia Above Castlegar is 3 percent below average; the Pend Oreille-Spokane, 9 percent below; the East Slopes of the Cascades, 16 percent above; and the rest, between these figures.

STREAMFLOW

River flows continue to be above average. As reported by the U. S. Geological Survey, only the Pend Oreille as measured at Newport, and the Okanogan at Tonasket have subnormal flows. Record flows were not experienced this month; but just generally high outflows as a result of above normal precipitation. Forecasts of water supply, as stated above, have not been drastically changed from that reported last month. On the mainstem of the Columbia, the forecasts range from 96 percent of normal - as measured at Birchbank; to 77 percent for the Columbia River at The Dalles. The Okanogan River System is now expected to outflow 66 and 67 percent of normal, which is a reduction from that reported last month. The Chelan River forecast has been increased 5 percent from last month's report; the Wenatchee has been improved 2 percent; and the Yakima, as measured at Parker, has been increased one percentage point. As stated before, very little change is forecast. We still need above normal precipitation, especially in the form of snow at the higher elevations, to maintain these forecast percentage points. If we do not get good rainfall, and the temperature remains warm, we will have to reduce these forecasts to what could be dangerously low figures. Numerical forecasts can be found following this narrative.

STREAMFLOW FORECASTS - FEBRUARY, 1981

The following summarized runoff forecasts are based principally on mountain snow-cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. These forecasts are made as a product of the cooperative efforts of the Soil Conservation Service and the National Weather Service. Streamflow figures for 1980 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1981	Seasonal Streamflow in Thousands of Acre-Feet % 15-yr. Avg.	Forecast period	1980	1979	1978	15-yr. Average 63-77
COLUMBIA BASIN							
COLUMBIA RIVER SYSTEM							
Columbia River	43600	96	Apr-Sept	40816	34484	44008	45502
at Birchbank 1/	34900	96	Apr-July	34085	27181	34030	36353
	25100	96	Apr-June	27623	19661	24082	26194
Columbia River	57800	85	Apr-Sept	61016	52769	66868	68012
at Grand Coulee 1/	48500	85	Apr-July	52320	44096	54559	57035
	37600	85	Apr-June	43871	35138	41585	44273
Columbia River	63400	86	Apr-Sept	66512	55298	72892	73935
bl. Rock Island Dam 1/	53700	86	Apr-July	57767	46700	60163	62462
	41700	86	Apr-June	48667	37453	46242	48489
Columbia River	79800	77	Apr-Sept	93170	76843	101055	103493
at The Dalles, OR 1/	68000	77	Apr-July	79931	65758	84815	88519
	54800	77	Apr-June	68316	55016	67353	71237
PEND OREILLE RIVER SYSTEM							
Pend Oreille River	10300	65	Apr-Sept	13271	11639	15581	15950
bl. Box Canyon	9550	65	Apr-July	12116	11095	14080	14690
	7640	65	Apr-June	10776	10217	11750	11760
KETTLE RIVER SYSTEM							
Kettle River	1600	87	Apr-Sept	1835	1265	2056	1846
nr. Laurier	1550	88	Apr-July	1747	1211	1877	1754
	1400	88	Apr-June	1603	1137	1686	1588
Colville River	105	78	Apr-Sept	116	63	138	134
at Kettle Falls	95	77	Apr-July	105	58	125	123
	90	78	Apr-June	97	55	117	115

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Basin, Stream and Station	Forecast Runoff 1981	% 15-yr. Avg.	Forecast period	1980	1979	1978	15-Yr. Average 63-77
			Seasonal Streamflow in Thousands of Acre-Feet				
SPOKANE RIVER SYSTEM **							
Spokane River	1500	52	Apr-Sept	2214	2809	2427	2910
at Post Falls, ID 2/	1400	51	Apr-July	2046	2757	2330	2733
	1300	50	Apr-June	1904	2678	2119	2600
OKANOGAN RIVER SYSTEM							
Similkameen River	1000	66	Apr-Sept	1476	870	1505	1517
nr. Nighthawk	950	67	Apr-July	1388	809	1365	1417
	810	68	Apr-June	1245	726	1170	1192
Okanogan River	1150	67	Apr-Sept	1551	911	1690	1719
nr. Tonasket	1070	68	Apr-July	1423	830	1500	1565
	900	69	Apr-June	1240	738	1286	1305
METHOW RIVER SYSTEM							
Methow River	810	80	Apr-Sept	996	478	1174	1011
nr. Pateros	750	80	Apr-July	934	432	1058	937
	630	80	Apr-June	811	382	876	791
CHELAN RIVER SYSTEM							
Chelan River	1100	89	Apr-Sept	1113	753	1335	1237
at Chelan 3/	960	89	Apr-July	1014	663	1164	1080
	750	89	Apr-June	854	553	906	834
Stehekin River	760	86	Apr-Sept		566	888	883
at Stehekin	650	87	Apr-July		477	750	744
	490	88	Apr-June		387	563	557
Entiat River	230	95	Apr-Sept		134	295	241
nr. Ardenvoir	210	96	Apr-July		120	268	218
	165	95	Apr-June		104	275	174
WENATCHEE RIVER SYSTEM							
Wenatchee River	1130	87	Apr-Sept		893	1311	1297
at Plain	1000	87	Apr-July		812	1171	1156
	790	88	Apr-June		704	945	903
Wenatchee River	1510	85	Apr-Sept	1516	1204	1755	1767
at Peshastin	1410	89	Apr-July	1399	1110	1576	1587
	1150	92	Apr-June	1208	969	1275	1250
Stemilt Basin	106*	77	May-Sept				138*
nr. Wenatchee							
Icicle Creek	295	80	Apr-Sept				371
nr. Leavenworth	285	83	Apr-July				342
	240	86	Apr-June				279

* Thousands of Miners' Inches.

** Forecasts made by Jack A. Wilson, Soil Conservation Service, Boise, Idaho.

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

Basin, Stream and Station	Forecast Runoff 1981	% 15-yr. Avg.	Forecast period	1980	1979	1978	15-yr. Average 63-77
			Seasonal Streamflow in Thousands of Acre-Feet				
YAKIMA RIVER SYSTEM							
Yakima River	100	69	Apr-Sept	115	124	114	145
nr. Martin 4/	90	68	Apr-July	103	114	101	133
	80	70	Apr-June	95	101	93	114
Yakima River	680	70	Apr-Sept	792	714	808	975
at Cle Elum 5/	625	71	Apr-July	716	683	696	883
	540	72	Apr-June	646	599	614	751
Yakima River	1500	69	Apr-Sept	1833	1388	1977	2168
nr. Parker 6/	1300	67	Apr-July	1733	1287	1691	1954
	1100	65	Apr-June	1610	1179	1487	1693
Kachess River	85	67	Apr-Sept	111	101	98	126
nr. Easton 7/	80	67	Apr-July	105	95	91	119
	75	71	Apr-June	91	88	84	104
Cle Elum River	360	75	Apr-Sept		348	417	479
nr. Roslyn 8/	330	76	Apr-July	350	326	372	435
	275	77	Apr-June	314	292	318	358
Bumping River	100	68	Apr-Sept	129	99	119	146
nr. Nile 9/	90	68	Apr-July	120	92	108	133
	75	71	Apr-June	111	82	93	106
American River	85	67	Apr-Sept			111	127
nr. Nile	75	65	Apr-July			93	116
	65	68	Apr-June			84	95
Tieton River	180	71	Apr-Sept	224	179	228	252
at Tieton Dam 10/	150	71	Apr-July	192	148	188	212
	125	74	Apr-June	166	120	148	168
Naches River	610	68	Apr-Sept	729	574	721	894
nr. Naches 11/	550	68	Apr-July	694	528	657	807
	450	66	Apr-June	638	478	564	680
Ahtanum Creek	35	74	Apr-Sept			48	47
nr. Tampico 12/	30	71	Apr-July			43	42
	26	70	Apr-June			37	37

4/ Observed flow corrected for storage in Lake Keechelus.
5/ Observed flow corrected for storage in Keechelus, Kachess, and Cle Elum Lakes and diversion by Kittitas Canal.
6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation, and Sunnyside Canals.
7/ Observed flow corrected for storage in Lake Kachess.
8/ Observed flow corrected for storage in Lake Cle Elum.
9/ Observed flow corrected for storage in Bumping Lake.
10/ Observed flow corrected for storage in Rimrock Lake.
11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals, and City of Yakima.
12/ Observed flow of North and South Forks (Combined).

Basin, Stream and Station	Forecast Runoff 1981	% 15-yr. Avg.	Forecast period	1980	1979	1978	15-yr. Average 63-77
			Seasonal Streamflow in Thousands of Acre-Feet				
LOWER COLUMBIA RIVER SYSTEM							
Mill Creek	10.50	60	Apr-Sept			12.11	17.50
at Walla Walla	10.00	58	Apr-July			11.99	17.33
	10.00	58	Apr-June			11.91	17.15
Lewis River	950	73	Apr-Sept	1001	974	904	1301
at Ariel 13/	770	68	Apr-July	883	839	610	1131
	700	70	Apr-June	798	755	515	995
Cowlitz River							
bl. Mayfield Dam	1590	75	Apr-Sept	1626		1635	2125
	1390	75	Apr-July	1432		1348	1853
	1150	74	Apr-June	1275		1150	1552
Cowlitz River	2080	75	Apr-Sept	1976	1985	2232	2767
at Castle Rock 14/	1800	75	Apr-July	1852	1746	1835	2401
	1520	75	Apr-June	1649	1537	1581	2028
OLYMPIC PENINSULA							
DUNGENESS RIVER SYSTEM							
Dungeness River	120	75	Apr-Sept			152	160
nr. Sequim	100	77	Apr-July			115	130
	75	78	Apr-June			83	96
PUGET SOUND							
SKAGIT RIVER SYSTEM							
Skagit River	1900	80	Mar-Aug			2110	2376
at Newhalem 15/	1710	73	Apr-Sept		1648	2115	2356
	1400	71	Apr-July		1359	1690	1972
	1100	74	Apr-June		1102	1285	1485
GREEN RIVER SYSTEM							
Green River	300	78	Mar-Sept			252	387
bl. Howard Hanson Dam 16/							
CEDAR RIVER SYSTEM							
Cedar River							
nr. Cedar Falls	60	64	Apr-Sept				93
ELWHA RIVER SYSTEM							
Elwha River	300	54	Apr-Sept			458	553
nr. Port Angeles	240	53	Apr-July			351	454

13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
14/ Observed flow corrected for storage in Mayfield Reservoir.
15/ Observed flow corrected for storage in Diablo, Ross and Gorge Reservoirs.
16/ Observed flow corrected for storage in Howard Hanson Dam.

RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured March 1 1981	1980	1979	Normal*
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	217.5	79.5	70.5	121.6
Columbia	Franklin D. Roosevelt Lake	5232.0	4813.9	2209.6	2912.8	2681.2
Columbia	Banks Lake	714.9	538.0	701.5	690.8	621.3
Okanogan	Conconully Reservoir	13.0	7.8	3.5	10.0	6.7
Okanogan	Conconully Lake	10.5	10.4	8.3	10.5	7.5
Chelan	Lake Chelan	676.1	437.3	168.4	198.1	235.5
		YAKIMA				
Yakima	Keechelus Lake	157.8	143.4	78.3	78.2	105.4
Kachess	Kachess Lake	239.0	204.1	76.9	187.9	183.0
Cle Elum	Lake Cle Elum	436.9	267.3	363.3	80.0	280.2
Bumping	Bumping Lake	33.7	32.5	15.8	8.3	8.7
Tieton	Rimrock Lake	198.0	197.5	68.4	146.4	125.3
		PUGET SOUND				
Skagit	Ross Reservoir	1404.1	1287.6	627.2	636.1	894.0
Skagit	Diablo Reservoir	90.6	85.2	85.0	85.0	85.2
Skagit	Gorge Reservoir	9.8	8.0	7.5	8.0	8.1

1/ Based on Active Storage

* 15-yr. Average 1963-1977

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about March 1, 1981, as percent of the same date in 1980 and 1979 and average of record. We have also added a comparison of 1977 data with average for your information, since 1977 was considered a low water year.

Tributary Basin	No. of Courses Average	1981 Snow Water Expressed as percent of 1980	1979	1963-77 Avg.	1977 as percent of Average
UPPER COLUMBIA BASIN					
Pend Oreille	15	67	54	49	32
Kettle	14	89	81	66	41
Colville	3	30	26	23	19
Spokane	11	71	45	42	31
Okanogan	40	91	107	69	36
Methow	8	87	157	77	15
Chelan	6	80	91	72	31
Entiat	10	82	102	67	28
Wenatchee	9	45	39	37	20
Yakima	24	44	46	38	11
Ahtanum	2	44	64	52	12
LOWER COLUMBIA BASIN					
Mill Creek	1	-	-	44	9
Cowlitz	2	42	38	32	12
PUGET SOUND					
White	3	61	62	49	15
Green	7	36	26	21	8
Cedar	7	No Snow			4
Snoqualmie	2	30	11	10	8
Skykomish	2	43	23	23	17
Skagit	10	63	62	44	24
Baker	8	61	45	34	25
Nooksack	4	35	60	45	44
OLYMPIC PENINSULA					
Morse	1	41	32	24	-
Elwha	1	27	10	9	10
Dungeness	1	44	28	26	9

PRECIPITATION 1/

Division Average Observations and Departures

Drainage Divisions	FALL Sept-Oct Observed	FALL 1980 2/ Departure	WINTER Nov. 1980 - Jan. 1981 Observed	WINTER Nov. 1980 - Jan. 1981 2/ Departure
Columbia in Canada	3.76	-1.26	13.21	-0.35
Pend Oreille - Spokane	2.75	-1.29	13.62	-1.40
Northeastern Washington	2.37	-0.11	7.56	-0.55
Southeastern Washington	2.33	-0.18	9.10	+0.33
Central Washington	1.60	+0.63	5.05	+0.47
North Central Washington	1.45	-0.14	6.29	+0.51
Northwest Slope Cascades	7.35	-5.86	46.67	-0.43
Southwest Slope Cascades	3.89	-4.79	34.12	-1.36

Northeastern Washington - Lower Spokane, Colville, Sanpoil, and Lower Kettle Drainages.

Southeastern Washington - Touchet, Tucannon, and Palouse Drainages.

Central Washington - Yakima, Wenatchee, and Chelan Drainages.

North Central Washington - Methow and Okanogan Drainages.

Northwest Slope Cascades - Puget Sound Drainages.

Southwest Slope Cascades - Lower Columbia Drainages.

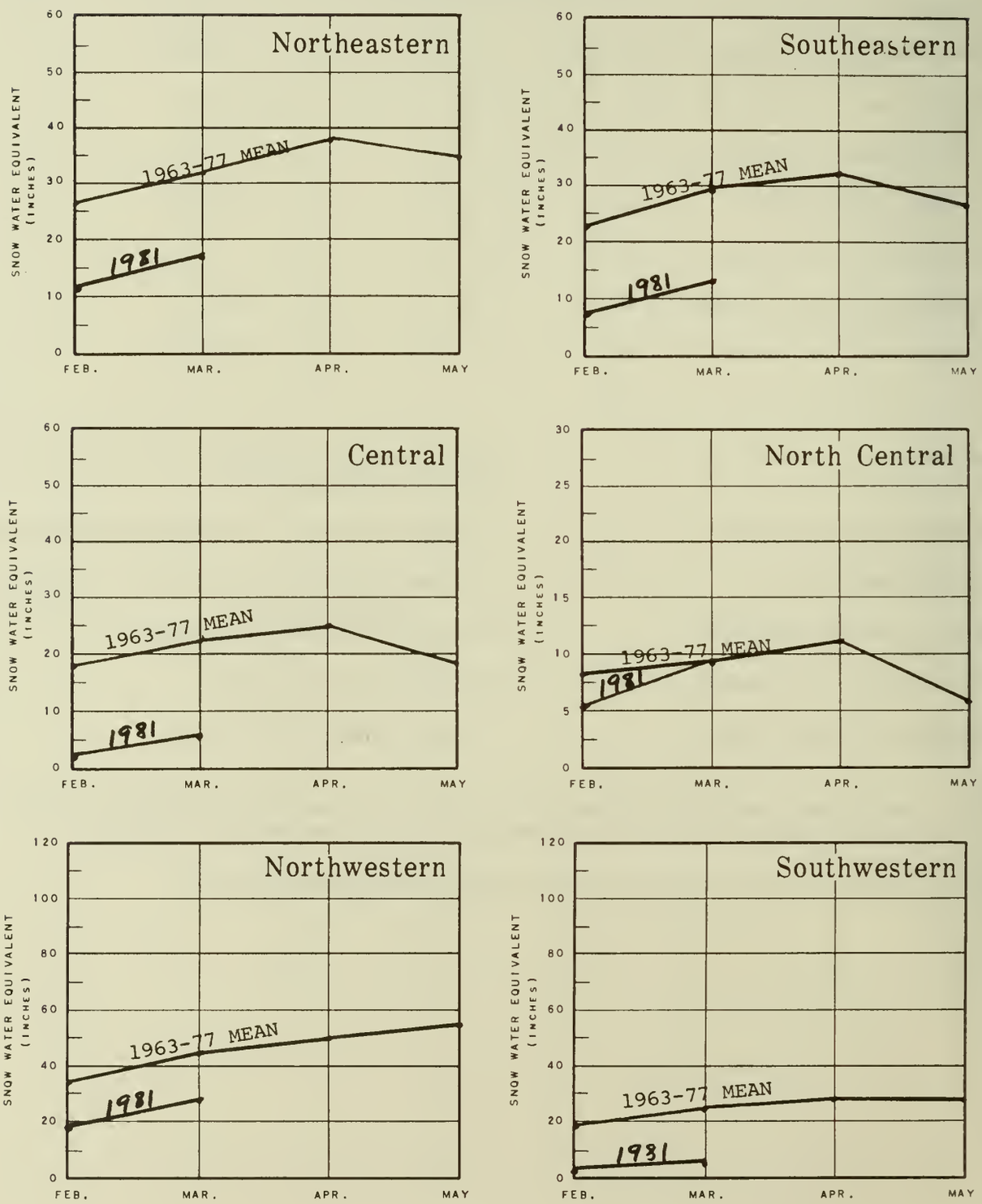
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorlogical Services of Canada and the National Weather Service.

2/ - Departure from 15-year (1958-72) drainage division average.

WASHINGTON SNOW COVER

1981

DRAINAGE AREAS



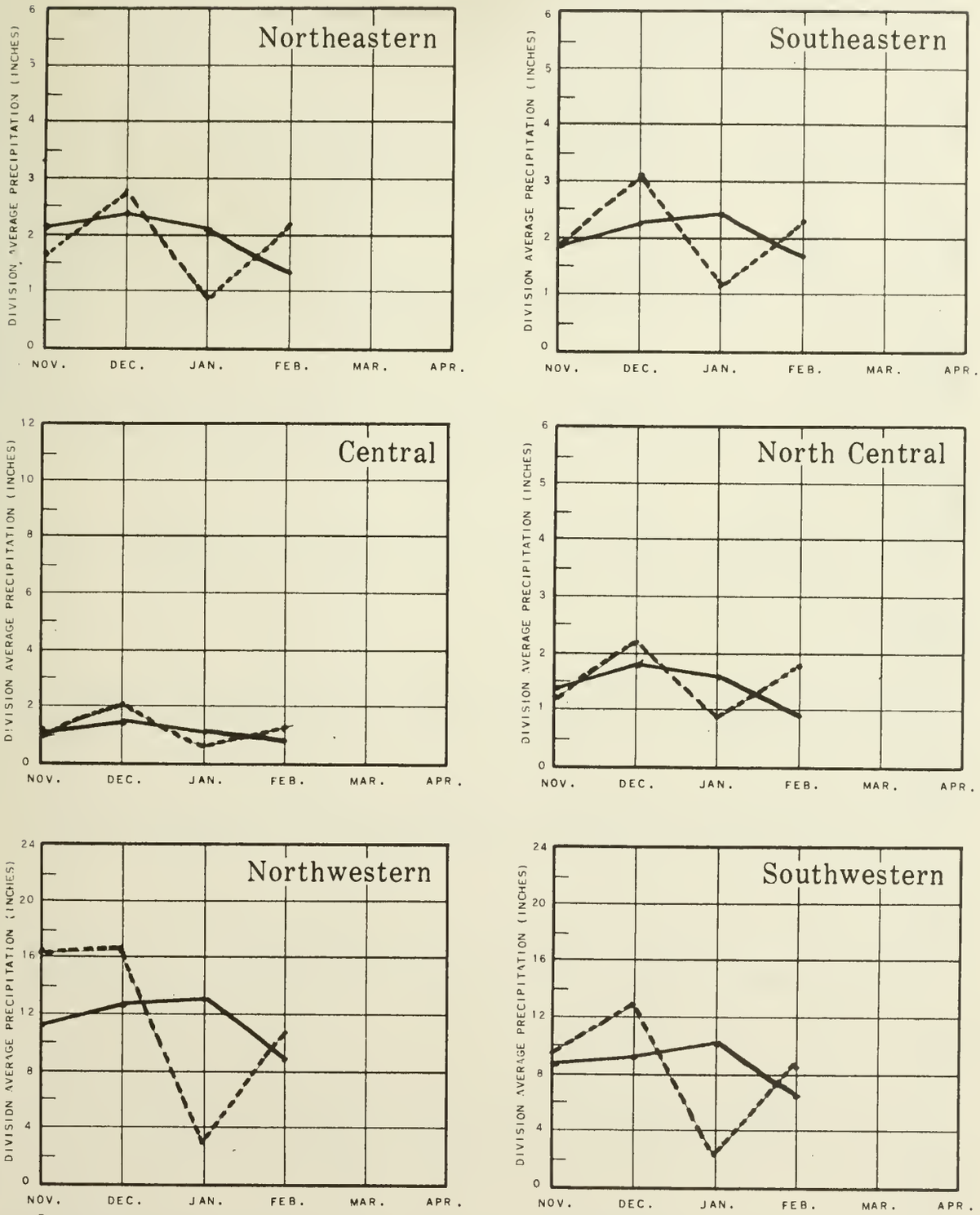
Selected Snow Survey Courses by Soil Conservation Service

M7-L-22028G

WASHINGTON VALLEY PRECIPITATION

1981

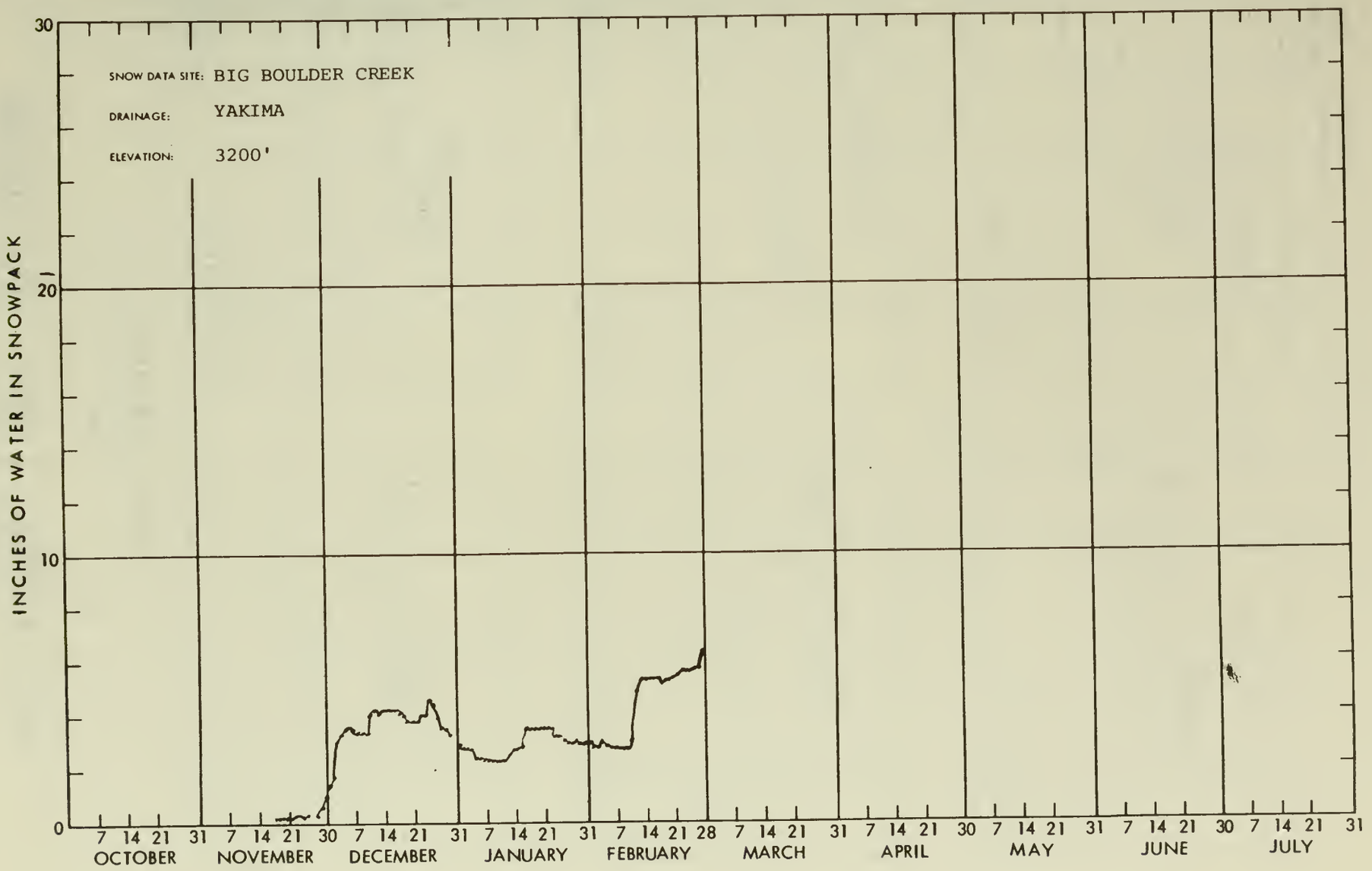
DRAINAGE AREAS

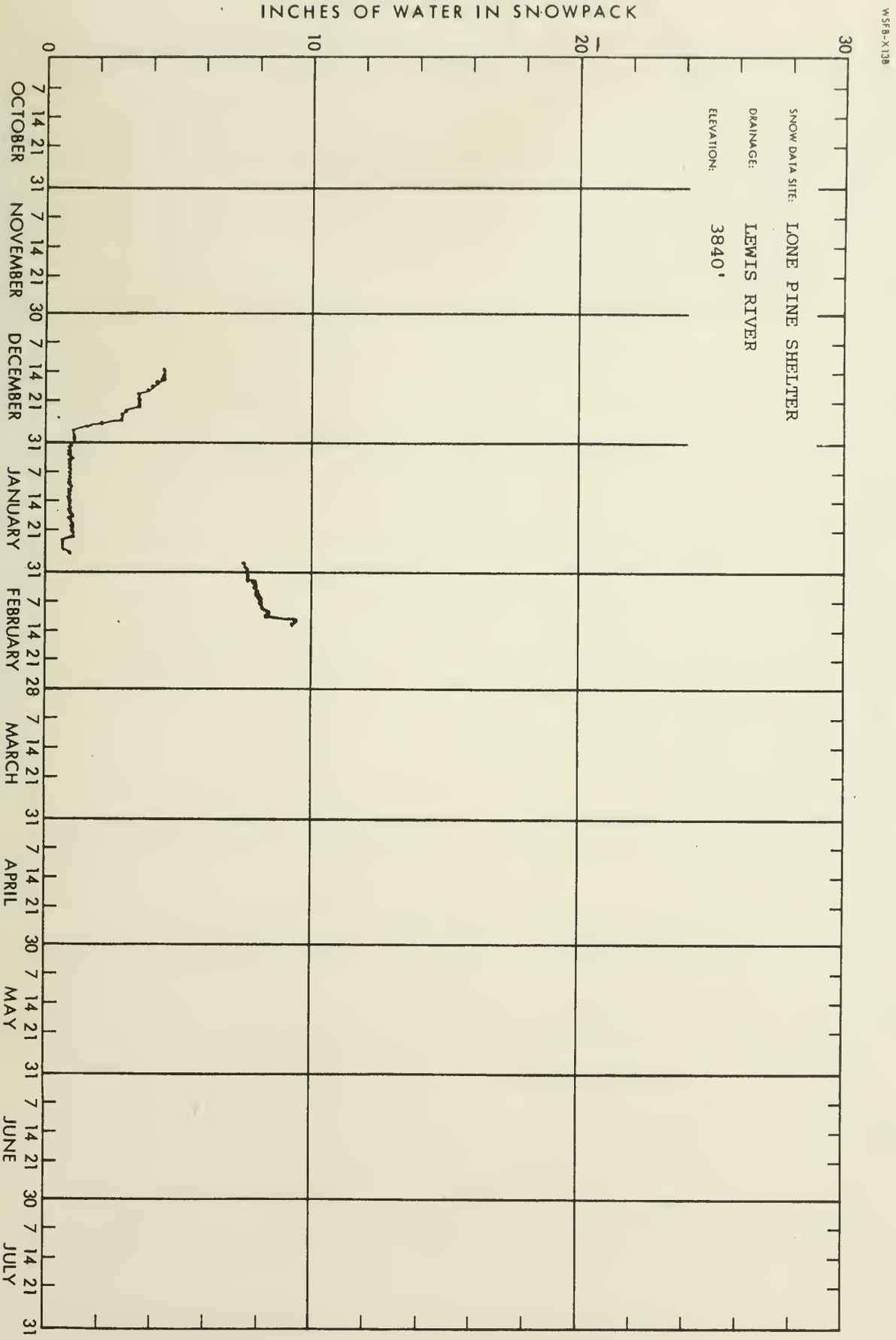


Preliminary Analysis by National Weather Service

M7-L-22028H

WSFB-X13B


SNOW DATA SITE: BIG BOULDER CREEK
DRAINAGE: YAKIMA
ELEVATION: 3200'
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY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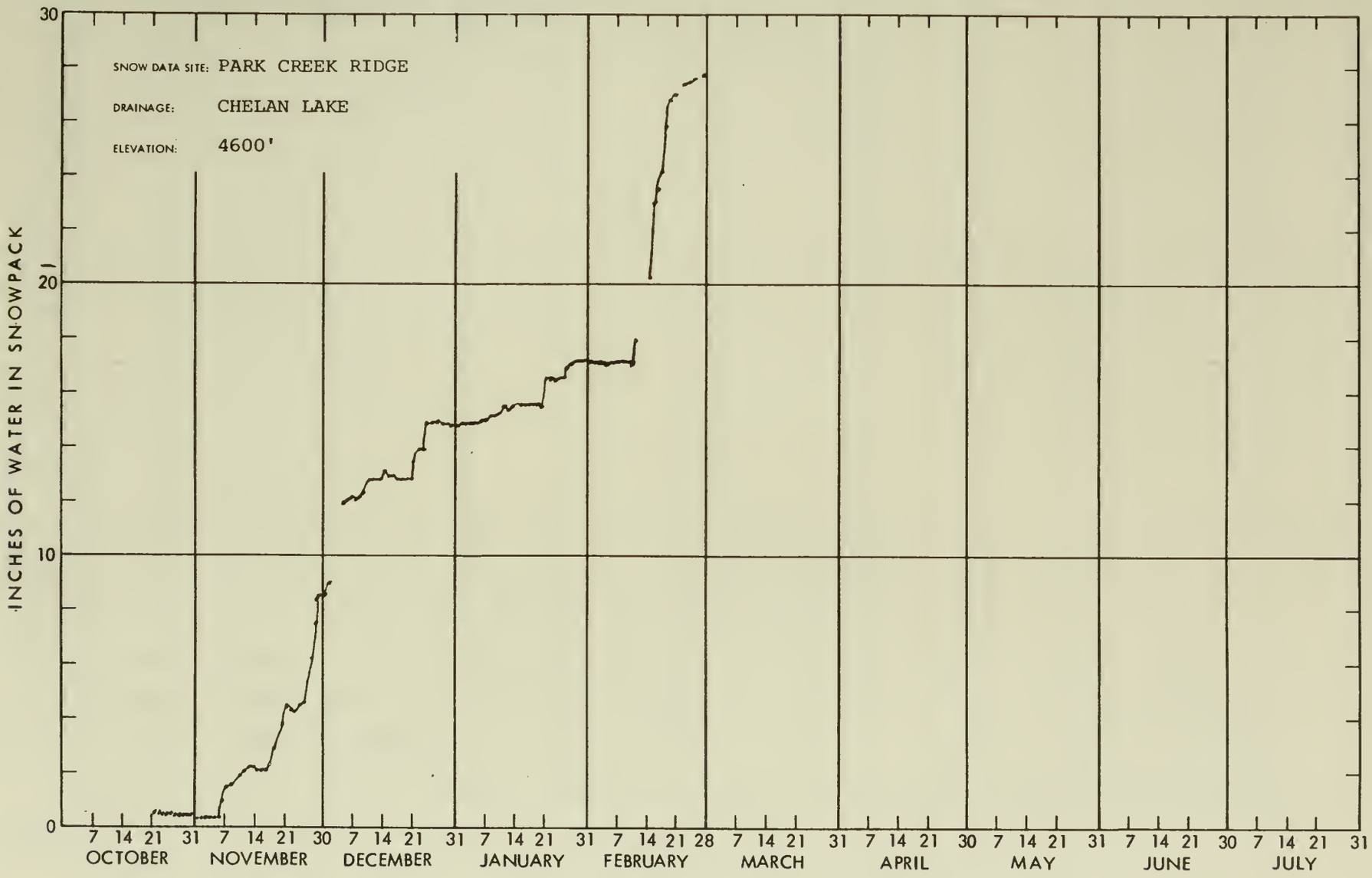
DRAINAGE: LEWIS RIVER
ELEVATION: 3840'
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31 OCTOBER
7 14 21 30 NOVEMBER
7 14 21 31 DECEMBER
7 14 21 31 JANUARY
7 14 21 28 FEBRUARY
7 14 21 31 MARCH
7 14 21 30 APRIL
7 14 21 31 MAY
7 14 21 30 JUNE
7 14 21 31 JULY

WSFB-X13B


SNOW DATA SITE: PARK CREEK RIDGE
DRAINAGE: CHELAN LAKE
ELEVATION: 4600'
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
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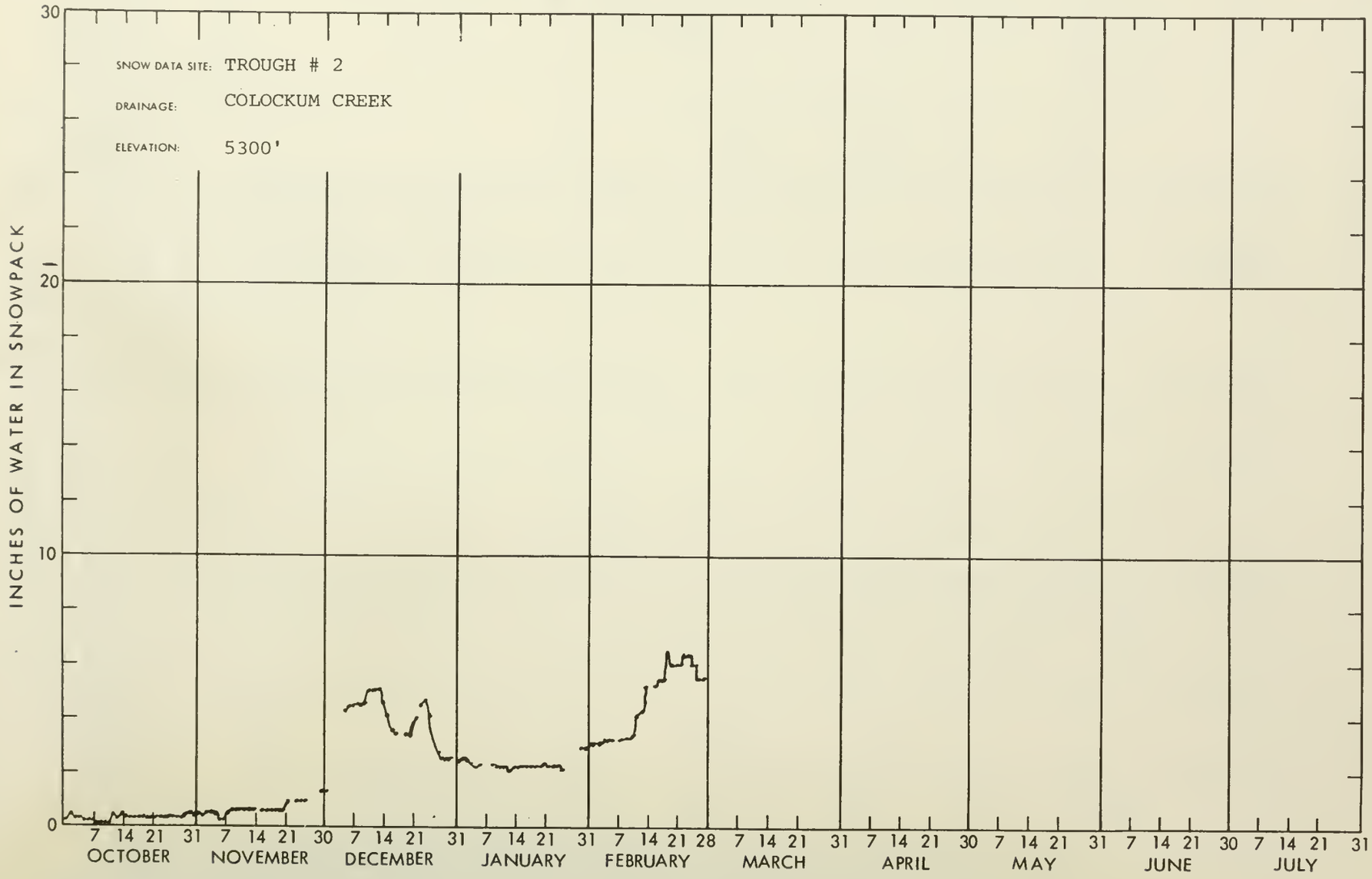
JUNE
JULY

WSFB-X13B


SNOW DATA SITE: TROUGH # 2
DRAINAGE: COLOCKUM CREEK
ELEVATION: 5300'
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY

MSFB-X4-L

SNOW DATA TO MARCH 1, 1981 - APPENDIX 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
UPPER COLUMBIA DRAINAGE								
PEND OREILLE RIVER								
Baree Creek	15B11	5500	2/27	69	26.0	27.4	19.5	43.8
Baree Midway	15B16	4600	2/27	47	14.8	21.4	16.5	34.0
Baree Trail	15B15	3800	2/27	4	0.5	4.8	1.0	10.0
Benton Meadow	16A02	2344	2/28	0	0.0	4.8	1.6	6.4
Benton Spring	16A03	4900	2/28	26	8.8	12.6	4.1	17.7
Boyer Mountain	17A02	5250	2/26	40	13.8	16.9	4.3	23.1
Brush Creek Timber	14A13	5000	2/26	17	4.5	5.9	3.4	9.5
Chewelah	17A04	4923	2/28	22	6.6	10.4	3.9	14.3
Heart Lake Trail	14C10	4800	2/26	26	7.6	14.1	6.7	21.1
Hoodoo Basin	15C10	6000	2/26	87	30.6	37.2	14.8	45.4
Hoodoo Creek	15C01	5900	2/26	79	25.8	34.5	12.2	42.0
Lookout	15B02	5250	2/27	49	16.6	20.6	10.0	31.0
Mosquito Ridge	16A04A	5100	2/25	66	23.3	24.1	-	34.6
Nelson	2D04-Can	3050	2/25	25	9.0	12.7	5.5	14.4*
Schweitzer Bowl	16A06	4500		Plowed Out		21.1	8.2	28.1
Schweitzer Ridge	16A05	6100	3/2	75	29.2	42.8	11.5	40.3
Winchester Creek	17A03	2970	2/25	1.3	0.4	8.0	2.0	10.6
KETTLE RIVER								
Barnes Creek	2B06-Can	5300	2/26	45	13.5	9.9	12.4	17.5*
Big White Mtn.	2E03-Can	5500	2/28	49	13.6	14.3	8.4	17.2*
Boulder Road	18A02	1450	2/26	0	0.0	3.5	0.8	4.5
Butte Creek	18A03	4070	2/26	23	5.3	7.8	3.4	8.5
Cabin Creek	18A08	3170	2/26	21	5.8	6.0	2.5	7.2
Carmi	2E02-Can	4100	2/28	16	3.7	4.3	2.5	6.2*
Farron # 1	2B02-Can	4000	2/26	34	9.4	10.8	3.2	12.2*
Farron # 2	2B02A-Can	4000	2/26	35	9.8	12.0	3.1	11.6*
Goat Creek	18A04	3595	2/26	14	4.6	6.0	2.9	6.5
Graystoke Lake	2F04-Can	5950	2/27	27	5.8	8.5	6.9	15.0*
Monashee Pass	2E01-Can	4500	2/26	31	9.6	5.9	8.8	12.5*
Snow Caps Creek	18A05	2150	2/26	0	0.0	3.8	1.2	4.8
Snow Caps Trail	18A06	2720	2/26	11	3.6	5.4	2.5	5.8
Summit G.S.	18A07	4600	2/26	16	4.1	4.8	2.5	7.3
Trapping Creek Lower	2E05-Can	3050	2/28	5.5	1.7	4.3	2.3	5.4*
Trapping Creek Upper	2E04-Can	4450	2/28	24	6.3	6.9	5.1	9.3*
COLVILLE RIVER								
Baird	17A06	3215	2/28	Trace		4.8	2.9	6.7
Carlson	18A09	2885	2/28	0	0.0	2.6	0.0	4.2
Chewelah	17A04	4925	2/28	22	6.6	10.4	3.9	14.3
Stranger Mountain	17A05	4990	2/28	11	2.0	9.6	1.9	12.5
Togo	18A10	3370	2/28	3.5	0.6	8.9	1.2	10.8

Average based on 1963-77 average
* Average for years of record

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO MARCH 1, 1981 - APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
SPOKANE RIVER								
Above Burke	15B08	6100	2/27	24	9.0	11.6	8.8	22.9
Copper Ridge	16B02	4800	2/25	21	7.6	11.2	7.8	25.1
Forty-nine Meadows	15B03	5000	2/27	38	11.9	14.9	-	27.2
Fourth of July Summit	16B03	3100	2/25	0	0.0	2.8	-	8.9
Kellogg Peak	16B05A	5560	2/25	23	8.9	19.6	-	28.2
Lookout	15B02	5250	2/27	49	16.6	20.6	10.0	31.0
Lost Lake	15B14A	6000	2/27	85	25.7	29.9	-	50.0
Lower Sands Creek	16B01	3400	2/25	12	4.1	8.4	6.2	17.5
Mosquito Ridge	16A04A	5110	2/25	66	23.3	24.1	-	34.6
Roland Summit	15B05A	5200	2/25	30	11.4	19.6	-	31.3
Sherwin	16C01	3200	2/25	7	2.6	5.8	3.5	13.3
Sunset	15B09A	5600	2/25	70	22.9	24.3	-	32.6
OKANOGAN RIVER								
Aberdeen Lake	1F01A-Can	4300	2/27	11	3.1	4.3	3.4	6.1*
Blackwall Mountain	2G03-Can	6250	2/25	73	23.1	26.5	8.5	31.1*
Bouleau Lake	2F21-Can	4580	2/28	36	8.8	7.1	6.5	12.3*
Brenda Mine	2F18-Can	4800	2/25	34	7.7	9.0	5.5	12.6*
Brookmere	1C01-Can	3200	2/28	21	6.6	7.6	2.7	8.9*
Enderby	1F04-Can	6250	2/24	84	25.7	21.2	20.6	32.1*
Esperon Creek Lower	2F15-Can	4400	3/1	29	7.4	7.1	3.5	10.6*
Esperon Creek Middle	2F14-Can	4700	3/1	33	9.1	9.4	5.2	13.2*
Esperon Creek Upper	2F13-Can	5400	3/1	37	10.7	9.9	6.2	16.0*
Graystoke Lake	2F04-Can	5950	2/27	27	5.8	8.5	6.9	15.0*
Hamilton Hill	2G06-Can	4900	2/27	33	9.4	12.2	5.0	14.4*
Harts Pass	20A05A	6500	2/27	96	27.9	33.5	12.3	41.1
Horseshoe Basin +	19A05a	7000	3/2	48	13.4	11.9	-	16.3
Isintok Lake	2F11-Can	5510	2/28	14	2.8	4.7	2.1	7.6*
Lost Horse Mountain	2B04-Can	6300	3/1	26	5.7	7.2	3.8	8.5*
Loup Loup	19A07	4650	2/25	29	7.1	10.4	0.4	8.8
McCulloch	2F03-Can	4200	2/26	29	9.8	5.0	3.4	6.4*
Missezula Mountain	2G05-Can	5100	2/25	17	4.3	7.6	3.0	9.1*
Mission Creek	2F05-Can	6000	2/27	39	10.9	10.9	10.5	17.3*
Monashee Pass	2E01-Can	4500	2/26	31	9.6	5.9	8.8	12.5*
Mount Kobau	2F12-Can	5950	2/28	39	8.5	9.0	2.4	10.7*
Muckamuck +	19A09a	6390	3/2	59	16.5	11.0	3.0	14.7
Mutton Creek No. 1	19A01	5700	2/26	40	9.7	10.9	0.0	12.7
Mutton Creek No. 2 SP	19A11	6000	2/26	-	4.6	8.6	0.0	10.0
1/Sunday Summit	2G01A-Can	4300	2/26	10	2.0	4.6	1.2	5.8*
2/Grayback Reservoir	2F08-Can	5225	2/27	23	4.8	5.9	3.6	8.0*

\# Average based on 1963-77 average
* Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation
1/ Formerly New Copper Mountain
2/ Formerly New Penticton Res. #2

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SNOW DATA TO MARCH 1, 1981 - APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches) Last Year	1977	Avg. #
OKANOGAN RIVER (Cont.)								
Nickel Plate Mtn.	2G02-Can	6200	2/27	14	3.0	7.2	4.7	7.3*
Oyama Lake	2F19-Can	4400	2/27	13	2.9	4.6	3.7	6.6*
Paysayten +	20A28a	4300	3/2	30	9.0	13.2	6.9	16.9
Postill Lake	2F07-Can	4500	2/27	23	5.3	4.6	4.9	7.5*
1/Lightning Lake	3D02-Can	4000	2/26	17	4.7	9.1	2.0	10.6*
Rusty Creek	19A03	4000	2/25	24	6.2	6.2	0.0	6.6
Salmon Meadows	19A02	4500	2/26	40	9.6	9.3	0.0	9.4
Silver Star Mountain	2F10-Can	6050	2/28	57	16.8	17.3	14.3	24.1*
Starvation Mtn +	19A10a	6750	3/2	66	18.5	16.2	6.0	17.5
Summerland Reservoir	2F02-Can	4200	2/28	21	5.5	6.8	3.8	9.0*
Touts Coulee	19A06	2845	2/26	14	3.7	3.3	0.3	3.5
Trout Creek	2F01-Can	4700	2/24	12	2.4	4.1	2.7	6.6*
Vaseux Creek	2F20-Can	4600	2/27	15	3.9	4.3	2.8	6.2*
White Rocks Mountain	2F09-Can	6000	2/26	43	11.7	14.1	7.1	19.6*
METHOW RIVER								
Harts Pass	20A05A	6500	2/27	96	27.9	33.5	12.3	41.1
Horseshoe Basin +	19A05a	7000	3/2	48	13.4	11.9	-	16.3
Loup Loup	19A07	4650	2/25	29	7.1	10.4	0.4	8.8
Mutton Creek No. 1	19A01	5700	2/26	40	9.7	10.9	0.0	12.7
Mutton Creek No. 2 SP	19A11	6000	2/26	-	4.6	8.6	0.0	10.0
Rusty Creek	19A03	4000	2/25	24	6.2	6.2	0.0	6.6
Salmon Meadows	19A02	4500	2/26	40	9.6	9.3	0.0	9.4
War Creek Pass +	20A31a	6500	3/2	96	28.8	-	-	42.9
CHELAN LAKE BASIN								
Cloudy Pass +	20A22a	6500	3/5	89	31.2	-	11.2	35.0
Little Meadows +	20A24a	5275	3/5	67	23.4	36.4	11.2	37.6
Lyman Lake	20A23A	5900	3/5	108	39.6	45.8	19.7	49.8
Park Creek Ridge	20A12A	4600	3/5	74	26.1	39.8	11.0	44.2
Rainy Pass	20A09	4780	2/25	78	23.0	28.8	12.3	37.0
War Creek Pass +	20A31a	6500	3/2	96	28.8	-	-	42.9
Mirror Lake	20A39	5600	3/5	73	20.6	-	-	New
ENTIAT RIVER								
Blue Creek G.S.	20B28a	5425	2/28	84	24.4	31.7	13.4	33.8
Brief	20B19	1600	2/21	0	0.0	7.8	0.0	7.5
Entiat Meadows +	20A33a	4540	2/28	98	28.4	35.6	14.7	57.7
Entiat River Trail +	20A34a	3325	2/28	52	17.7	20.3	10.6	25.6
Four Mile Ridge +	20B27a	6800	2/28	74	21.5	27.7	3.8	28.4
Fox Camp +	20A36a	6510	2/28	146	42.3	48.2	19.2	52.9
Pope Ridge	20B20	3540	2/26	32	10.7	14.8	2.1	18.2
Pugh Ridge +	20A32a	6725	2/28	97	28.1	32.0	7.4	40.8
Shady Pass	20A37	6200	2/25	60	17.6	21.8	4.4	23.7
Snow Brushy +	20A35a	3910	2/28	69	23.5	28.7	12.5	35.8
Tommy Creek +	20B21a	4900	2/28	50	14.5	17.2	3.2	26.5

\# Average based on 1963-77 average
* Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation
1/ Formerly Quartette Lake

USDA SCS-PORTLAND OREGON 1973

SNOW DATA TO MARCH 1, 1981 - APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
WENATCHEE RIVER								
Berne-Mill Creek	21B23	2925	2/13	37	9.0	21.3	2.8	24.5
			2/27	33	12.5	21.8	4.5	26.0
Berne-Mill Creek New SP	21B41	3240	2/27	19	6.9	21.1	2.9	24.0
Blewett Pass No. 2	20B02	4270	3/2	13	4.4	15.0	1.9	15.0
Chiwaukum G.S.	20B16	1810	2/13	27	5.6	10.2	2.7	11.0
			2/27	15	5.7	10.3	2.9	11.6
Fish Lake	21B04	3371	2/27	36	12.6	25.3	7.1	31.1
Lake Wenatchee	20B05	1970	2/13	28	5.4	11.4	3.2	13.5
			2/27	15	5.6	11.4	3.7	14.4
Leavenworth R.S.	20B17	1127	2/12	9.9	2.6	3.5	0.0	5.5
			3/1	0	0.0	5.3	0.0	4.4
Lyman Lake	20A23A	5900	3/5	108	39.6	45.8	19.7	49.8
Merritt	20B18	2140	2/13	31	4.3	12.1	2.5	15.5
			2/27	16	5.7	11.8	2.8	15.8
Stevens Pass	21B01	4070	2/13	39	10.4	33.9	6.8	43.5
			2/27	48	16.5	36.0	11.7	48.0
Stevens Pass Sand Shed	21B45	3700	2/13	28	4.7	23.8	2.6	32.1
			2/27	30	10.0	24.7	4.4	34.9
SQUILCHUCK CREEK								
Beehive Springs	20B03	4400	2/25	7.9	2.7	11.7	0.0	8.1
Scout-A-Vista	20B04	3400	2/25	13	4.8	10.8	0.0	8.2
STEMILT CREEK								
Jump-Off	20B08	4450	2/24	7.6	1.8	12.0	0.0	8.4
Stemilt Slide	20B06	5000	2/24	21	6.7	14.6	0.0	13.1
Upper Wheeler	20B07	4400	2/24	3.9	1.3	12.9	0.0	9.7
COLOCKUM CREEK								
Colockum Creek Upper	20B22	5300	2/24	11	3.6	9.6	0.0	13.3
Colockum Creek Lower	20B23	4300	2/24	12	3.5	13.0	0.0	10.1
Trough # 2	20B25SP	5310	2/24	18	6.0	-	0.0	New
YAKIMA RIVER								
Ahtanum R. S.	21C11	3100	2/25	5.1	3.1	10.7	0.5	6.7
Big Boulder Creek	21B09	3200	2/27	15	4.8	15.0	2.0	19.3
Blewett Pass No. 2	20B02	4270	3/2	13	4.4	15.0	1.9	15.0
Bumping Lake	21C08	3450	2/13	13	4.3	14.6	0.0	14.8
			2/26	9.4	3.3	16.7	0.0	20.4
Bumping Lake New	21C36	3400	2/13	20	6.1	18.0	0.0	18.5
			2/26	16	6.5	19.4	1.0	20.2
Cayuse Pass	21C06	5300	2/26	78	28.5	52.5	11.4	71.0
Colockum Pass	20B09	5370	2/24	20	6.6	16.1	0.0	14.2
Cooke Creek	20B10	4123	2/24	Trace		6.3	0.0	5.7
Corral Pass	21B13	6000	2/26	52	16.6	24.5	3.9	35.1
Fish Lake	21B04	3371	2/27	36	12.6	25.3	7.1	31.1

Average based on 1963-77 Average

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SNOW DATA TO MARCH 1, 1981 - APPENDIX 5

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches) Last Year	1977	Avg. #
YAKIMA RIVER (Cont.)								
Green Lake	21C10	6000	2/25	45	17.5	29.3	3.8	29.6
Grouse Camp	20B11	5385	2/25	26	8.6	17.8	1.2	15.5
High Creek	20B12	2930	2/25	7.6	2.5	7.7	0.0	6.1
Joe Lake +	21B46a	4624	2/28	73	25.9	37.4	18.0	53.5
Lake Cle Elum	21B14M	2200	2/11	9.6	2.0	6.5	0.0	9.2
			2/25	7.5	2.9	6.3	0.9	9.2
Lemah Creek +	21B47a	3327	2/28	45	15.9	31.5	6.0	41.9
Manashtash	20C01	3935	2/26	Trace		7.3	0.0	4.3
Morse Lake	21C17	5400	2/26	76	27.8	45.7	7.7	47.2
Nanum	20B13	3875	2/25	9.6	2.5	8.8	0.3	9.8
Olallie Meadows	21B02	3625	2/26	21	6.7	23.0	3.8	44.8
Satus Pass	20D01	4030	3/2	0	0.0	7.2	1.2	9.1
Stampede Pass SP	21B10	3860	2/17	24	8.9	30.7	4.0	36.2
			2/23	30	11.0	32.5	5.8	35.7
Trail Creek	20B14	3360	2/24	0	0.0	4.0	0.0	2.6
Tunnel Avenue	21B08	2450	2/11	13	3.0	17.4	0.0	19.9
			2/25	14	5.7	17.6	1.2	21.6
Van Epps Pass +	20B26a	5925	2/28	77	27.3	32.1	14.6	43.0
Walters Flat	20B15	3360	2/25	11	4.3	8.7	0.0	7.1
Waptus Lake +	21B49a	3024	2/28	45	15.9	22.6	8.0	41.4
White Pass (E. Side)	21C28	4500	2/12	13	3.5	16.6	0.0	21.0
			2/27	19	5.7	19.0	1.4	23.1
AHTANUM CREEK								
Ahtanum R. S.	21C11	3100	2/25	5.1	3.1	10.7	0.5	6.7
Green Lake	21C10	6000	2/25	45	17.5	29.3	3.8	29.6
LOWER COLUMBIA DRAINAGE								
ASOTIN CREEK								
Spruce Springs	17C04	5700	2/23	29	11.4	16.8	2.0	22.6
MILL CREEK								
Homestead	17C01	4030	2/25	Trace		7.1	0.0	8.2
Martin Springs	17C02	4400	2/25	Trace		9.6	0.5	12.1
High Ridge	18D19	4150	2/26	40	13.1	-	-	29.4
KLICKITAT RIVER								
Satus Pass	20D01	4030	3/2	0	0.0	7.2	1.2	9.1
COWLITZ RIVER								
Cayuse Pass	21C06	5300	2/26	78	28.5	52.5	11.4	71.0
Potato Hill	22C14	4500	2/25	19	5.8	-	-	27.0
Ryan Lake	22C08	3280	2/26	22	6.6	-	-	New
White Pass (E. Side)	21C28	4500	2/12	13	3.5	16.6	0.0	21.0
			2/27	19	5.7	19.0	1.4	23.1

\# Average based on 1963-77 average

\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS-PORTLAND OREGON 1973

SNOW DATA TO MARCH 1, 1981 - APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
PUGET SOUND DRAINAGE								
WHITE RIVER								
Cayuse Pass	21C06	5300	2/26	78	28.5	52.5	11.4	71.0
Corral Pass	21B13	6000	2/26	52	16.6	24.5	3.9	35.1
Morse Lake	21C17	5400	2/26	76	27.8	45.7	7.7	47.2
GREEN RIVER								
Airstrip	21B24	1800	2/27	0	0.0	0.0	0.0	5.1
Charley Creek	21B25	1200	2/27	0	0.0	0.0	0.0	1.2
Cougar Mountain SP	21B42	3200	2/26	Trace		6.9	0.0	20.9
Grass Mtn. No. 2	21B27	2900	2/27	1.1	0.3	10.3	0.0	19.1
Grass Mtn. No. 3	21B28	2100	2/27	0	0.0	0.0	0.0	5.7
Lester Creek	21B29	3100	2/27	14	4.9	16.3	1.9	21.7
Lynn Lake	21B50	4000	2/27	7.8	3.6	5.1	0.3	18.7
Sawmill Ridge	21B31	4700	2/27	29	10.4	19.1	3.7	33.7
Snowshoe Butte SP	21B43	5000	2/26	41	14.1	41.0	5.6	52.7
Stampede Pass SP	21B10	3860	2/17	24	8.9	30.7	4.0	36.2
			2/23	30	11.0	32.5	5.8	35.7
Twin Camp	21B30	4100	2/27	10	3.8	15.9	0.3	22.3
CEDAR RIVER								
City Cabin	21B03	2390	2/24	0	0.0	9.3	0.9	17.2
Mt. Gardner	21B21	3300	2/24	0	0.0	7.0	0.4	18.7
Mt. Lindsay	21B16	2500	2/24	0	0.0	7.9	0.6	15.1
Mt. Washington New	21B15	3000	2/24	0	0.0	0.0	0.5	8.8
Rex River	21B17	2400	2/24	0	0.0	8.6	0.6	12.7
S. F. Cedar	21B06	3000	2/24	0	0.0	9.3	0.3	19.7
Tinkham Creek	21B20	3400	2/24	0	0.0	16.6	0.8	22.9
SNOQUALMIE RIVER								
Alpine Meadow	21B48	3500	2/27	16	4.4	14.2	4.1	41.2
Lake Elizabeth	21B19	2900	2/24	4.6	1.7	-	2.6	37.7
Olallie Meadows	21B02	3625	2/26	21	6.7	23.0	3.8	44.8
S. F. Tolt	21B18	1900	2/27	0	0.0	0.0	0.0	3.2
SKYKOMISH RIVER								
Lake Elizabeth	21B19	2900	2/24	4.6	1.7	-	2.6	37.7
Stevens Pass	21B01	4070	2/13	39	10.4	33.9	6.8	43.5
			2/27	48	16.5	36.0	11.7	48.0
Stevens Pass Sand Shed	21B45	3700	2/13	28	4.7	23.8	2.6	32.1
			2/27	30	10.0	24.7	4.4	34.9

Average based on 1963-77 average

USDA-SCS-PORTLAND OREGON 1973

SNOW DATA TO MARCH 1, 1981 - APPENDIX 7

SNOW			THIS YEAR			PAST RECORD		
DRAINAGE BASIN and/or SNOW COURSE						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
SKAGIT RIVER								
Beaver Creek Trail	21A04	2200	2/25	0	0.0	9.7	0.0	14.9
Beaver Pass	21A01	3680	2/25	19	6.2	20.1	1.2	28.7
Brown Top Ridge +	21A28a	6000	2/27	113	28.0	42.8	16.0	61.2
Cloudy Pass +	20A22a	6500	3/5	89	31.2	-	11.2	35.0
Devils Park	20A04	5900	2/26	87	28.1	29.8	12.6	41.3
Freezeout Creek Trail	20A01	3500	2/26	7.6	1.6	8.9	0.6	12.7
Freezeout Meadows New	20A38	5000	2/26	55	16.4	20.1	12.4	42.5
Granite Creek	21A29A	3500	2/26	25	7.5	13.0	4.7	19.2
Harts Pass	20A05A	6500	2/27	96	27.9	33.5	12.3	41.1
Klesilkwa	3D03A-Can	3700	2/27	0	0.0	5.6	0.3	12.4*
1/Lightning Lake	3D02-Can	4000	2/26	17	4.7	9.1	2.0	10.6*
Lyman Lake	20A23A	5900	3/5	108	39.6	45.8	19.7	49.8
Meadow Cabins	20A08	1900	2/25	0	0.0	4.2	0.0	7.4
New Hozomeen Lake	21A30	2800	2/26	Trace		8.7	0.0	14.2
New Tashme	3D01A-Can	2500	2/27	0	0.0	5.9	1.5	11.1*
Rainy Pass	20A09	4780	2/25	78	23.0	28.8	12.3	37.0
Thunder Basin	20A07	4200	2/27	19	4.9	11.8	4.2	20.9
BAKER RIVER								
Dock Butte	21A11A	3800	3/3	38	15.0	28.0	-	64.2
Easy Pass	21A07A	5200	3/3	93	37.0	48.0	18.8	71.3
Jasper Pass	21A06A	5400	3/3	108	43.0	50.0	23.0	82.5
Marten Lake	21A09A	3600	3/3	52	21.0	39.0	17.5	71.8
Mount Blum +	21A18a	5800	3/3	82	33.0	37.0	-	62.1
Panorama New	21A26	4300	2/28	42	17.3	48.8	14.0	66.0
Rocky Creek	21A12A	2100	3/3	0	0.0	13.0	-	30.4
Schreibers Meadow	21A10A	3400	3/3	8	3.0	26.0	10.0	54.5
S. F. Thunder Creek	21A14A	2200	3/3	0	0.0	0.0	-	11.7
Watson Lakes	21A08A	4500	3/3	52	21.0	27.0	-	60.9
NOOKSACK RIVER								
Bald Mountain +	21A19a	4400	2/27	27	11.1	-	18.6	46.2
Canyon +	21A20a	5100	2/27	120	49.4	-	29.1	58.1
Panorama New	21A26	4300	2/28	42	17.3	48.8	14.0	66.0
Twin Lakes +	21A21a	5200	2/27	80	32.8	-	27.3	70.4
OLYMPIC PENINSULA								
DUNGENESS RIVER								
Deer Park	23B04	5200	2/25	20	4.7	10.8	1.7	18.3
MORSE CREEK								
Cox Valley	23B14	4500	2/26	30	8.6	21.2	6.3	36.5
ELWHA RIVER								
Hurricane	23B03	4500	2/24	8.3	1.9	7.0	2.0	20.3

\# Average based on 1963-77 average

* Average for years of record

\+ Snow water equivalent estimated from aerial stadia observation

1/ Formerly Quartette Lake

USDA SCS-PORTLAND OREGON 1973

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Ministry of the Environment, Water Investigations Branch, Victoria, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
- Corps of Engineers

U. S. Department of Agriculture
- Forest Service

U. S. Department of Commerce
- NOAA, National Weather Service

U. S. Department of the Interior
- Bonneville Power Administration
- Bureau of Reclamation
- Geological Survey
- National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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United States
Department of
Agriculture

Soil
Conservation
Service

Spokane,
Washington

Water Supply Outlook for Washington

as of APRIL 1, 1981 . . .

in cooperation with

Department of Ecology
State of Washington

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TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SNOW SURVEYORS MAKING SPECIAL MEASUREMENTS OF THE SNOWPACK NEAR MT. ST. HELENS VOLCANO, WASHINGTON, APRIL, 1980.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4420 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U. S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W, Calgary, Alberta T3C 1A6.

WATER SUPPLY OUTLOOK

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and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

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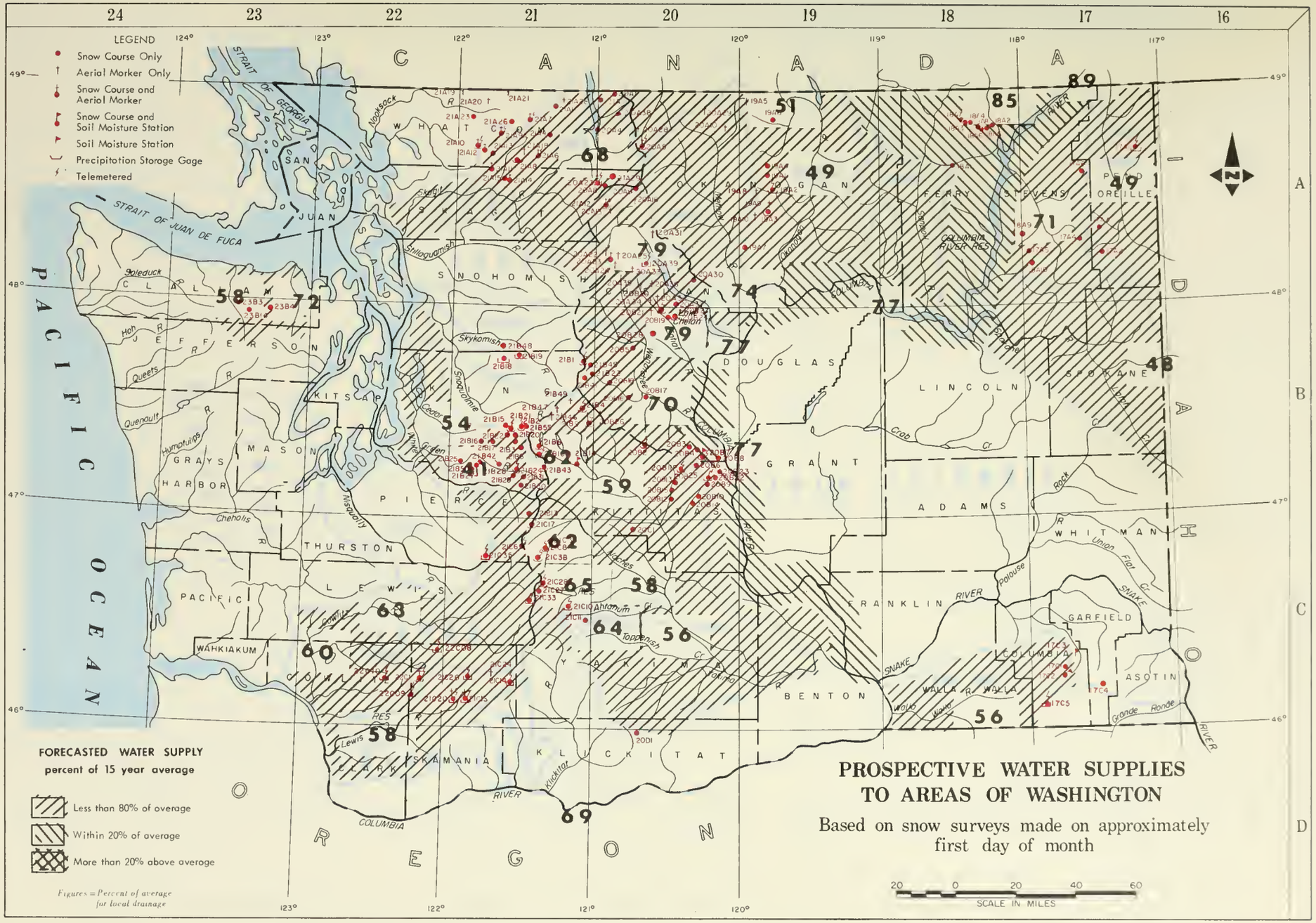
PROSPECTIVE WATER SUPPLIES
TO AREAS OF WASHINGTON
Based on snow surveys made on approximately
first day of month
LEGEND
Snow Course Only
Aerial Marker Only
Snow Course and Aerial Marker
Snow Course and Soil Moisture Station
Soil Moisture Station
Precipitation Storage Gage
Telemetered
FORECASTED WATER SUPPLY
percent of 15 year average
Less than 80% of average
Within 20% of average
More than 20% above average
Figures = Percent of average for local drainage
SCALE IN MILES
CANADA
PACIFIC OCEAN
OREGON
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
SAN JUAN
WHATCOM
SKAGIT
SNOHOMISH
OKANOGAN
FERRY
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PEND OREILLE
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Nooksack
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Puyallup
Nisqually
Cowlitz
Lewis
Klickitat
Yakima
Wenatchee
Methow
Okanogan
Similkameen
Pend Oreille
Kettle
Colville
Spokane
Crab Cr
Rock Cr
Palouse
Union Flat Cr
Tucannon
Tenmile
Ahtanum Cr
Toppenish Cr
Grande Ronde
Walla Walla
Wolf
Hoh
Queets
Quinault
Humptulips
Cheholis
Soleduck
Chelan
Entiat

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	1 A1SP	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2SP	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5SP	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23SP	18	31N	16E	5900
Park Creek Flat	20A13a	19	34N	16E	2220
Park Creek Ridge	20A12SP	18	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9SP	21	35N	17E	4780
Safety Harbor	20A30a	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Mirror Lake	20A39	30	31N	18E	5600
Entiat River					
Blue Creek G.S.	20B28a	19	28N	18E	5425
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4540
Entiat River Trail	20A34a	2	29N	17E	3325
Four Mile Ridge	20R27a	15	28N	19E	6800
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	3540
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540
Pugh Ridge	20A32a	34	30N	18E	6725
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3910
Tommy Creek	20B21a	10	28N	18E	4900
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	3170
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2SP	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1SP	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough 2	20B25SP	10	20N	20E	5310
Colockum Creek					
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20R8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7SP	30	21N	20E	4400
Yakima River					
Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	21B9SP	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38SP	9	15N	12E	4600
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Fish Lake	21B4SP	28	24N	14E	3371
Green Lake	21C10SP	3	12N	13E	6000
Grouse Camp	20B11SP	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17SP	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8P	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28SP	2	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Touchet River					
Couse	17C3m	2	9N	40E	3370
Homestead	17C1	11	9N	40E	4030
Mortin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Touchet No. 2	17C5SP	6	7N	40E	5530
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
Lewis River					
Lone Pine Shelter	21C26SP	8	9N	7E	3800
Marble Mountain	22C09SP	26	8N	5E	3200
Plains of Abraham	22C1SP	35	9N	5E	4400
Spencer Meadow	21C20SP	16	8N	7E	3400
Surprise Lakes	21C13SP	14	7N	8E	4250
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Pigtail Peak	21C33SP	11	13N	11E	5900
Pototo Hill	21C14SP	36	10N	10E	4500
Ryan Lake	22C08SP	9	10N	6E	3280
Sheep Canyon	22C10SP	12	8N	4E	4920

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Paradise Park (New)	21C35SP	13	15N	8E	5500
White River					
Corral Pass	21B13SP	30	18N	11E	6000
Green River					
Airstrip	21B24P	18	20N	11E	1800
Chorley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B5C	22	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10SP	25	21N	11E	3860
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16P	31	22N	9E	2500
Mt. Washington	21B15P	8	22N	9E	3000
Rex River	21B17P	11	21N	9E	2400
South Fork Cedar	21B6P	24	21N	10E	3000
Tinkham Creek	21B20P	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2P	19	22N	11E	3625
South Fork Tolt	21B18P	26	26N	9E	1900
Olallie Meadows East	21B55SP	20	22N	11E	8700
Skykomish River					
Lake Elizabeth	21B19P	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows (New)	20A38	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	20A7	19	40N	14E	2800
Thunder Basin	21A30	10	35N	14E	4200
Baker River					
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AP	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	31	29N	6W	4500
Elwha River					
Hurricane	23B3	36	29N	7W	4500

LEGEND

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course And Aerial Marker
21A7M	Snow Course And Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course And Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow

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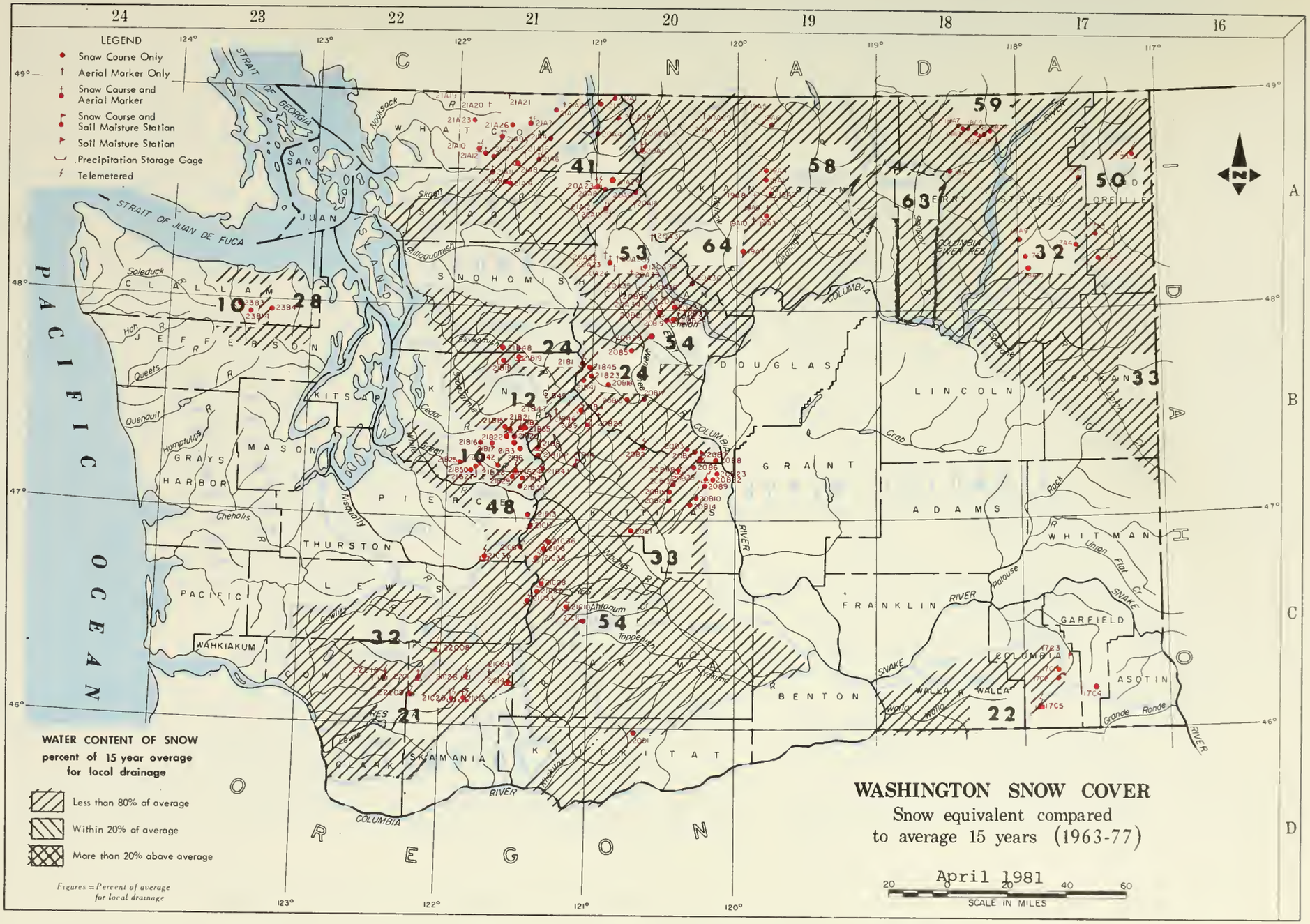
WASHINGTON SNOW COVER
Snow equivalent compared
to average 15 years (1963-77)
April 1981
SCALE IN MILES
LEGEND
Snow Course Only
Aerial Marker Only
Snow Course and Aerial Marker
Snow Course and Soil Moisture Station
Soil Moisture Station
Precipitation Storage Gage
Telemetered
WATER CONTENT OF SNOW
percent of 15 year average for local drainage
Less than 80% of average
Within 20% of average
More than 20% above average
Figures = Percent of average for local drainage
PACIFIC OCEAN
CANADA
OREGON
IDAHO
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
SAN JUAN
WHATCOM
SKAGIT
SNOHOMISH
CLALLAM
JEFFERSON
KITSAP
MASON
GRAYS HARBOR
PIERCE
THURSTON
LEWIS
PACIFIC
WAHKIAKUM
COWLITZ
CLARK
SKAMANIA
KLICKITAT
YAKIMA
KITTITAS
CHELAN
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LINCOLN
ADAMS
FRANKLIN
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WALLA WALLA
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Wenatchee
Cedar
Tiscohoty
Cheholis
Queets
Quinault
Humptulips
Soleduck
Hoh
Dungeness
Dosewallips
Duckabush
Hamma Hamma
Skokomish
Nisqually
Puyallup
White
Green
Cowlitz
Lewis
Tieton
Ahtanum
Toppenish
Yakima
Naches
Methow
Okanogan
Similkameen
Kettle
Colville
Spokane
Pend Oreille
Grab Cr
Rock
Union Flat Cr
Palouse
Walla Walla
Grande Ronde
Tucannon
Pataha
Alkali
Lewis
Klickitat
Wind
Little White Salmon
Big White Salmon
Hood
Deschutes
Crooked
Ochoco
Malheur
Owyhee
Bruneau
Jarbidge
Salmon
Boise
Payette
Weiser
Snake
Clearwater
Lochsa
Selway
Salmon
Pend Oreille
Kootenai
Flathead
Bitterroot
Clark Fork
Spokane
Little Spokane
Pend Oreille
Kettle
Okanogan
Methow
Similkameen

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	1 A1SP	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Toga	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2SP	33	37N	24E	4500
Starvation Mtn	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5SP	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23SP	18	31N	16E	5900
Park Creek Flat	20A13a	19	34N	16E	2220
Park Creek Ridge	20A12SP	18	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9SP	21	35N	17E	4780
Safety Harbor	20A30a	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Mirror Lake	20A39	30	31N	18E	5600
Entiat River					
Blue Creek G.S.	20B28a	19	28N	18E	5425
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4540
Entiat River Trail	20A34a	2	29N	17E	3325
Four Mile Ridge	20B27a	15	28N	19E	6800
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	3540
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540
Pugh Ridge	20A32a	34	30N	18E	6725
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3910
Tommy Creek	20B21a	10	28N	18E	4900
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	3170
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2SP	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1SP	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough 2	20B25SP	10	20N	20E	5310
Colockum Creek					
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Visto	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7SP	30	21N	20E	4400
Yakima River					
Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	21B9SP	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38SP	9	15N	12E	4600
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Fish Lake	21B4SP	28	24N	14E	3371
Green Lake	21C10SP	3	12N	13E	6000
Grouse Camp	20B11SP	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21846	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17SP	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8P	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21849a	12	23N	13E	3024
White Pass (East Side)	21C28SP	2	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Touchet River					
Couse	17C3m	2	9N	40E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Touchet No. 2	17C5SP	6	7N	40E	5530
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
Lewis River					
Lone Pine Shelter	21C26SP	8	9N	7E	3800
Marble Mountain	22C09SP	26	8N	5E	3200
Plains of Abraham	22C1SP	35	9N	5E	4400
Spencer Meadow	21C20SP	16	8N	7E	3400
Surprise Lakes	21C13SP	14	7N	8E	4250
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Pigtail Peak	21C33SP	11	13N	11E	5900
Potato Hill	21C14SP	36	10N	10E	4500
Ryan Lake	22C08SP	9	10N	6E	3280
Sheep Canyon	22C10SP	12	8N	4E	4920

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Paradise Park (New)	21C35SP	13	15N	8E	5500
White River					
Corral Pass	21B13SP	30	18N	11E	6000
Green River					
Airstrip	21B24P	18	20N	11E	1800
Charley Creek	21825	27	21N	8E	1200
Cougar Mountain	21842SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B2B	12	20N	8E	2100
Lester Creek	21829	36	20N	10E	3100
Lynn Lake	2185C	22	20N	8E	4000
Sawmill Ridge	21831	5	19N	11E	4700
Snowshoe Butte	21843SP	14	20N	11E	5000
Stampede Pass	21B10SP	25	21N	11E	3860
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	2183	10	21N	10E	2390
Mt. Gardner	21821P	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16P	31	22N	9E	2500
Mt. Washington	21815P	8	22N	9E	3000
Rex River	21B17P	11	21N	9E	2400
South Fork Cedar	21B6P	24	21N	10E	3000
Tinkham Creek	21B20P	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2P	19	22N	11E	3625
South Fork Tolt	21818P	26	26N	9E	1900
Olallie Meadows East	21855SP	20	22N	11E	8700
Skykomish River					
Lake Elizabeth	21819P	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows (New)	20A38	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	20A7	19	40N	14E	2800
Thunder Basin	21A30	10	35N	14E	4200
Baker River					
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AF	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	31	29N	6W	4500
Elwha River					
Hurricane	23B3	36	29N	7W	4500

LEGEND

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course And Aerial Marker
21A7M	Snow Course And Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course And Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow

WATER SUPPLY OUTLOOK

State of Washington

April 1, 1981

The storms of the last of March and the first of April were a welcome change from the extremely dry, warm weather that the state has experienced; but it was too little and too late. True, a lot of moisture was put down in the high country and it was put down after the snow surveys were made; but the measurements that were made before and after indicate that the state of Washington is still going to be hurting for water come late summer and early fall. Forecasts made as of April 1, have been further reduced from those issued on March 1. In some areas, this reduction is minimal-1 or 2 percent; but in others, such as the Okanogan, this reduction has been as much as 20 percent. Rainfall this past month was above normal only in southeastern Washington and the Okanogan. All other drainage divisions reported subnormal precipitation. Where we keep expecting the snowpack to improve up through April 1 each year, 1981 did not come up to expectations. We maxed out on March 1 and have been going down hill every since.

SNOW COVER

The April 1 snowpack is pretty poor. The Upper Columbia Basin has a snowpack that ranges from a low of 24 percent of normal to a high of 64 percent. In 1977, the range was only from 29 to 54 percent. Several of our tributary basins have less snow this year than they had back in 1977. The major difference is that the soil and the weather was bone dry in 1977 where this year we have a wet soil mantle and a wet snowpack. The Lower Columbia snowpacks are all worse than was measured in 1977. Mill Creek was 34 percent less than it was in 1977; the Lewis, 27 percent less; and the Cowlitz, 7 percent less. The Puget Sound Drainage is somewhat of a mixed bag; but most tributary basins report less snow in 1981 than was measured in 1977. The Cedar River is one of these anomalies. In 1977, the snowpack on the Cedar River, as of April 1, was 56 percent of normal. This year, when the surveyors went snow surveying on the 27th of March, they drove to all of the snow courses and all of them were bare. Undoubtedly, snow has occurred since the measurements were made; but not enough to overcome this deficit. Only the White River Drainage has a better snowpack now than was measured in 1977. On the Olympic Peninsula, the snowpack is 10 and 28 percent of normal now compared to 54 and 52 percent for 1977 at this same time. An individual breakdown can be found on page 8 of this report.

RESERVOIRS

Back in December of last year, we had some excellent rainfalls; and these, in turn, washed out a lot of the snow that was on the ground. Through proper management techniques, water managers throughout the basin and state caught a lot of this water in our reservoirs. The result is that we are going into the spring water use season with reservoirs that are nearly full or already full and it is anticipated that all reservoirs will fill with the spring runoff. For example, the Yakima with a capacity of 1,066,000 acre feet has 908,700 acre feet in storage for a total of 85 percent of capacity. This current storage as compared to average storage is 23 percent above. The other lakes and reservoirs in the state have a similar situation with well above average amounts of water in storage.

PRECIPITATION

As reported by the National Weather Service, rainfall during the month of March was generally deficient over the state and tributary basins. The November through March winter precipitation story is close to average with five divisions reporting subnormal amounts and four above average. In Canada, the Columbia Above Castlegar had rainfall only 64 percent of average and when added to the previous month's precipitation, now stands at 93 percent of normal for the November through March period. The Pend Oreille-Spokane Drainage had only 57 percent of normal precipitation during the month for a winter accumulation of 86 percent. The east slopes of the Cascades were very dry this past month - only 36 percent of normal precipitaion occurred; yet, still, the winter story for this drainage division is 7 percent above average. Percentagewise, the best drainage division is the Okanogan, it being 10 percent greater than average.

STREAMFLOW

A mixed bag has also occurred with the streamflow during the month of March. The range of outflows is from 40 percent of normal for the Palouse River, as measured near Hooper, to a high of 109 percent above average for the Kettle River at Laurier. Excellent flows continue to occur on the mainstem from British Columbia with the Columbia having an outflow, as measured at Birchbank, of 39 percent above normal down to The Dalles with an outflow that is 10 percent below average. This low number is probably the result of low flows from the Snake. Our forecasts of streamflow now range from a high of near 90 percent of normal on the mainstem of the Columbia at Birchbank to a low of 49 percent of normal for the Okanogan Drainage, as measured near Tonasket. A few of the key drainages in the state indicate subnormal flows are expected. For example, in the Yakima system, the forecast for the Yakima River near Parker is for a flow only 56 percent of normal for the April-September period. On the Puget Sound Drainage, we expect the Green River, as measured below Howard Hanson Dam, to flow only 41 percent of average and the Cedar River, 54 percent. As previously stated, the outflow from Canada through the Okanogan system is expected to be only 49 percent of normal, or 850,000 acre feet. Individual forecasts can be found following this narrative.

STREAMFLOW FORECASTS - APRIL, 1981

The following summarized runoff forecasts are based principally on mountain snow-cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. These forecasts are made as a product of the cooperative efforts of the Soil Conservation Service and the National Weather Service. Streamflow figures for 1980 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1981	Seasonal Streamflow in Thousands of Acre-Feet % 15-yr. Avg.	Forecast period	1980	1979	1978	15-yr. Average 63-77
COLUMBIA BASIN							
COLUMBIA RIVER SYSTEM							
Columbia River	40400	89	Apr-Sept	40816	34484	44008	45502
at Birchbank 1/	32300	89	Apr-July	34085	27181	34030	36353
	23300	89	Apr-June	27623	19661	24082	26194
Columbia River	52300	77	Apr-Sept	61016	52769	66868	68012
at Grand Coulee 1/	43300	76	Apr-July	52320	44096	54559	57035
	33600	76	Apr-June	43871	35138	41585	44273
Columbia River	56700	77	Apr-Sept	66512	55298	72892	73935
bl. Rock Island Dam 1/	47300	76	Apr-July	57767	46700	60163	62462
	36800	76	Apr-June	48667	37453	46242	48489
Columbia River	71000	69	Apr-Sept	93170	76843	101055	103493
at The Dalles, OR 1/	59800	68	Apr-July	79931	65758	84815	88519
	48400	68	Apr-June	68316	55016	67353	71237
PEND OREILLE RIVER SYSTEM							
Pend Oreille River	7800	49	Apr-Sept	13271	11638	15581	15950
bl. Box Canyon	7200	49	Apr-July	12116	11095	14080	14690
	5800	49	Apr-June	10776	10217	11750	11760
KETTLE RIVER SYSTEM							
Kettle River	1560	85	Apr-Sept	1835	1259	2056	1846
nr. Laurier	1500	86	Apr-July	1747	1216	1877	1754
	1380	87	Apr-June	1603	1132	1686	1588
Colville River	95	71	Apr-Sept	116	63	138	134
at Kettle Falls	85	69	Apr-July	105	58	125	123
	80	70	Apr-June	97	55	117	115

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Basin, Stream and Station	Forecast Runoff 1981	% 15-yr. Avg.	Forecast period	1980	1979	1978	15-yr. Average 63-77
			Seasonal Streamflow in Thousands of Acre-Feet				
SPOKANE RIVER SYSTEM **							
Spokane River	1400	48	Apr-Sept	2214	2809	2427	2910
at Post Falls, ID 2/	1300	48	Apr-July	2046	2757	2330	2733
	1200	46	Apr-June	1904	2678	2119	2600
OKANOGAN RIVER SYSTEM							
Similkameen River	780	51	Apr-Sept	1479	872	1505	1517
nr. Nighthawk	740	52	Apr-July	1391	812	1365	1417
	630	53	Apr-June	1247	728	1170	1192
Okanogan River	850	49	Apr-Sept	1551	909	1690	1719
nr. Tonasket	780	50	Apr-July	1423	825	1500	1565
	670	51	Apr-June	1240	730	1286	1305
METHOW RIVER SYSTEM							
Methow River	744	74	Apr-Sept	996	478	1174	1011
nr. Pateros	700	75	Apr-July	934	432	1058	937
	600	76	Apr-June	811	382	876	791
CHELAN RIVER SYSTEM							
Chelan River	950	77	Apr-Sept	1120	753	1335	1237
at Chelan 3/	850	79	Apr-July	1020	662	1164	1080
	650	78	Apr-June	859	553	906	834
Stehekin River	700	79	Apr-Sept		566	888	883
at Stehekin	600	81	Apr-July		477	750	744
	450	81	Apr-June		387	563	557
Entiat	190	79	Apr-Sept	216	134	295	241
nr. Ardenvoir	175	80	Apr-July	200	120	268	218
	140	80	Apr-June	172	104	275	174
WENATCHEE RIVER SYSTEM							
Wenatchee River	910	70	Apr-Sept		893	1311	1297
at Plain	820	71	Apr-July		812	1171	1156
	650	72	Apr-June		704	945	903
Wenatchee River	1290	73	Apr-Sept	1516	1165	1755	1767
at Peshastin	1140	72	Apr-July	1399	1074	1576	1587
	910	73	Apr-June	1208	938	1275	1250
Stemilt Basin nr. Wenatchee	100*	72	May-Sept				138*
Icicle Creek	220	60	Apr-Sept				371
nr. Leavenworth	210	62	Apr-July				342
	175	63	Apr-June				279

* Thousands of Miners' Inches.

** Forecasts made by Jack A. Wilson, Soil Conservation Service, Boise, Idaho.

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

Basin, Stream and Station	Forecast Runoff 1981	% 15-yr. Avg.	Forecast period	1980	1979	1978	15-yr. Average 63-77
			Seasonal Streamflow in Thousands of Acre-Feet				
YAKIMA RIVER SYSTEM							
Yakima River	90	62	Apr-Sept	115	124	114	145
nr. Martin 4/	80	60	Apr-July	103	114	101	133
	70	61	Apr-June	95	101	93	114
Yakima River	575	59	Apr-Sept	792	714	808	975
at Cle Elum 5/	515	58	Apr-July	716	683	696	883
	450	60	Apr-June	646	599	614	751
Yakima River	1210	56	Apr-Sept	1833	1388	1977	2168
nr. Parker 6/	1050	54	Apr-July	1733	1287	1691	1954
	1000	59	Apr-June	1610	1179	1487	1693
Kachess River	70	56	Apr-Sept	111	101	98	126
nr. Easton 7/	65	55	Apr-July	105	95	91	119
	60	58	Apr-June	91	88	84	104
Cle Elum River	310	65	Apr-Sept		348	417	479
nr. Roslyn 8/	275	63	Apr-July	350	326	372	435
	240	67	Apr-June	314	292	318	358
Bumping River	90	62	Apr-Sept	129	99	119	146
nr. Nile 9/	80	60	Apr-July	120	92	108	133
	65	61	Apr-June	111	82	93	106
American River							
nr. Nile	80	63	Apr-Sept		81	111	127
	70	60	Apr-July		74	93	116
	60	63	Apr-June		66	84	95
Tieton River	165	65	Apr-Sept	224	179	228	252
at Tieton Dam 10/	140	66	Apr-July	192	148	188	212
	110	65	Apr-June	166	120	148	168
Naches River	520	58	Apr-Sept	729	574	721	894
nr. Naches 11/	470	58	Apr-July	694	528	657	807
	380	56	Apr-June	638	478	564	680
Ahtanum Creek	30	64	Apr-Sept			48	47
nr. Tampico 12/	25	60	Apr-July			43	42
	20	54	Apr-June			37	37

4/ Observed flow corrected for storage in Lake Keechelus.
5/ Observed flow corrected for storage in Keechelus, Kachess, and Cle Elum Lakes and diversion by Kittitas Canal.
6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation, and Sunnyside Canals.
7/ Observed flow corrected for storage in Lake Kachess.
8/ Observed flow corrected for storage in Lake Cle Elum.
9/ Observed flow corrected for storage in Bumping Lake.
10/ Observed flow corrected for storage in Rimrock Lake.
11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals, and City of Yakima.
12/ Observed flow of North and South Forks (Combined).

Basin, Stream and Station	Forecast Runoff 1981	% 15-yr. Avg.	Forecast period	1980	1979	1978	15-yr. Average 63-77
			Seasonal Streamflow in Thousands of Acre-Feet				
LOWER COLUMBIA RIVER SYSTEM							
Mill Creek	9.86	56	Apr-Sept		22.37	12.11	17.50
at Walla Walla	9.55	55	Apr-July		22.25	11.99	17.33
	9.51	55	Apr-June		22.14	11.91	17.15
Lewis River	750	58	Apr-Sept	1001	962	904	1301
at Ariel 13/	660	58	Apr-July	883	830	610	1131
	580	58	Apr-June	798	749	515	995
Cowlitz River	1340	63	Apr-Sept	1626	1563	1635	2125
bl. Mayfield Dam	1130	61	Apr-July	1432	1367	1348	1853
	930	60	Apr-June	1275	1203	1150	1552
Cowlitz River	1650	60	Apr-Sept	1976	2046	2232	2767
at Castle Rock 14/	1350	56	Apr-July	1852	1792	1835	2401
	1150	57	Apr-June	1649	1574	1581	2028
OLYMPIC PENINSULA							
DUNGENESS RIVER SYSTEM							
Dungeness River	115	72	Apr-Sept		110	152	160
nr. Sequim	95	73	Apr-July		90	115	130
	70	73	Apr-June		71	83	96
PUGET SOUND							
SKAGIT RIVER SYSTEM							
Skagit River	1500	68	Apr-Aug		1523	1903	2212
at Newhalem 15/	1600	68	Apr-Sept		1648	2115	2356
	1300	66	Apr-July		1359	1690	1972
	1000	67	Apr-June		1102	1285	1485
ELWHA RIVER SYSTEM							
Elwha River	320	58	Apr-Sept		404	458	553
nr. Port Angeles	260	57	Apr-July		330	351	454
GREEN RIVER SYSTEM							
Green River bl. Howard Hanson Dam 16/	130	41	Apr-Sept		227	199	316
CEDAR RIVER SYSTEM							
Cedar River nr. Cedar Falls	50	54	Apr-Sept		70	59	93

13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
14/ Observed flow corrected for storage in Mayfield Reservoir.
15/ Observed flow corrected for storage in Diablo, Ross and Gorge Reservoirs.
16/ Observed flow corrected for storage in Howard Hanson Dam.

RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured April 1 1981	1980	1979	Normal*
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	170.4	87.1	152.1	121.6
Columbia	Franklin D. Roosevelt Lake	5232.0	4224.7	1374.8	1879.4	1260.0
Columbia	Banks Lake	714.9	685.5	688.2	650.7	590.8
Okanogan	Conconully Reservoir	13.0	8.6	4.0	10.6	7.2
Okanogan	Conconully Lake	10.5	10.4	8.3	10.5	7.5
Chelan	Lake Chelan	676.1	408.9	92.0	131.6	184.6
		YAKIMA				
Yakima	Keechelus Lake	157.8	156.9	94.4	101.9	108.8
Kachess	Kachess Lake	239.0	217.2	92.2	207.9	189.8
Cle Elum	Lake Cle Elum	436.9	304.2	363.4	128.4	292.1
Bumping	Bumping Lake	33.7	33.1	27.4	11.5	8.6
Tieton	Rimrock Lake	198.0	197.3	96.5	154.4	142.2
		PUGET SOUND				
Skagit	Ross Reservoir	1404.1	1188.8	511.3	688.3	754.4
Skagit	Diablo Reservoir	90.6	87.5	87.1	88.4	85.7
Skagit	Gorge Reservoir	9.8	8.3	7.8	8.0	8.0

1/ Based on Active Storage

* 15-yr. Average 1963-1977

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about April 1, 1981, as percent of the same date in 1980 and 1979 and average of record. We have also added a comparison of 1977 data with average for your information, since 1977 was considered a low water year.

Tributary Basin	No. of Courses Average	1981 Snow Water Expressed as percent of 1980	1979	1963-77 Avg.	1977 as percent of Average
UPPER COLUMBIA BASIN					
Pend Oreille	14	59	60	50	49
Kettle	10	66	100	59	54
Colville	2	39	32	32	40
Spokane	10	51	39	33	49
Sanpoil	1	82	109	63	38
Okanogan	36	70	118	58	54
Methow	6	71	280	64	37
Chelan	4	58	73	53	46
Entiat	10	69	84	54	38
Wenatchee	7	30	32	24	38
Yakima	15	39	48	33	32
Ahtanum	1	63	76	54	29
LOWER COLUMBIA BASIN					
Mill Creek	3	26	6	22	56
Lewis	5	-	-	21	48
Cowlitz	2	27	47	32	39
PUGET SOUND					
White	3	63	68	48	38
Green	8	22	21	16	42
Snoqualmie	2	18	17	12	47
Skykomish	2	30	32	24	48
Skagit	12	55	63	41	42
Baker	1	27	31	21	49
Nooksack	1	27	31	21	71
OLYMPIC PENINSULA					
Elwha	1	26	16	10	54
Morse	1	39	36	25	-
Dungeness	1	41	34	28	52

PRECIPITATION 1/

Division Average Observations and Departures

Drainage Divisions	FALL Sept-Oct 1980 2/ Observed	Departure	WINTER Nov. 1980 - Mar. 1981 2/ Observed	Departure
Columbia in Canada	3.76	-1.26	14.49	-1.02
Pend Oreille - Spokane	2.75	-1.29	15.12	-2.43
Northeastern Washington	2.37	-0.11	8.49	-0.91
Southeastern Washington	2.33	-0.18	11.21	+0.78
Central Washington	1.60	+0.63	5.50	+0.22
North Central Washington	1.45	-0.14	7.16	+0.62
Northwest Slope Cascades	7.35	-5.86	52.10	-3.29
Southwest Slope Cascades	3.89	-4.79	38.40	-3.24

Northeastern Washington	- Lower Spokane, Colville, Sanpoil, and Lower Kettle Drainages.
Southeastern Washington	- Touchet, Tucannon, and Palouse Drainages.
Central Washington	- Yakima, Wenatchee, and Chelan Drainages.
North Central Washington	- Methow and Okanogan Drainages.
Northwest Slope Cascades	- Puget Sound Drainages.
Southwest Slope Cascades	- Lower Columbia Drainages.

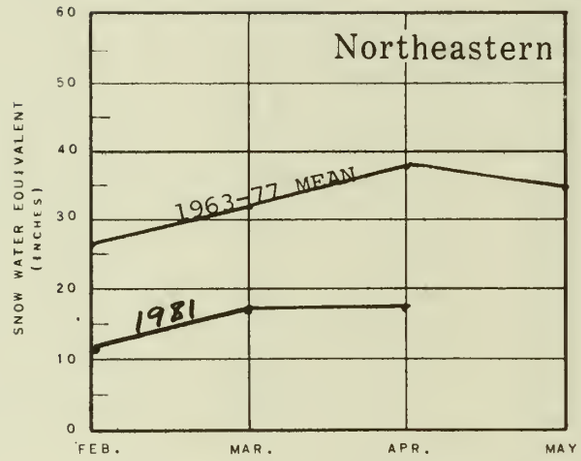
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorlogical Services of Canada and the National Weather Service.

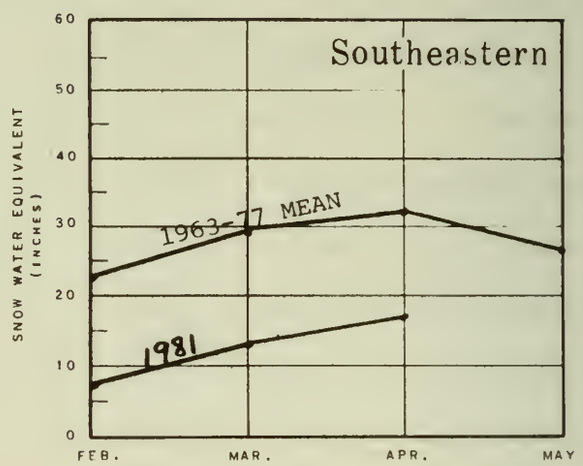
2/ - Departure from 15-year (1958-72) drainage division average.

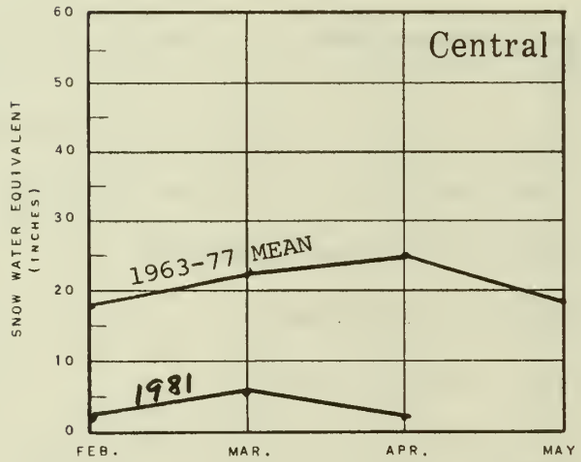
WASHINGTON SNOW COVER

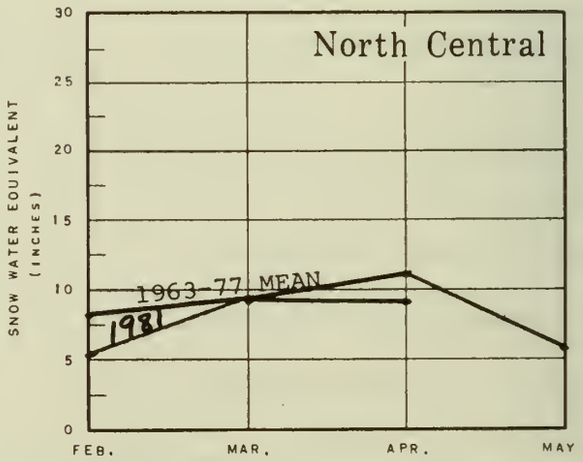
1981

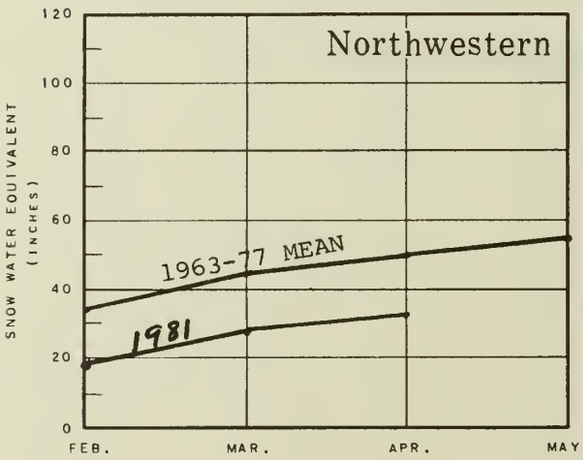
DRAINAGE AREAS

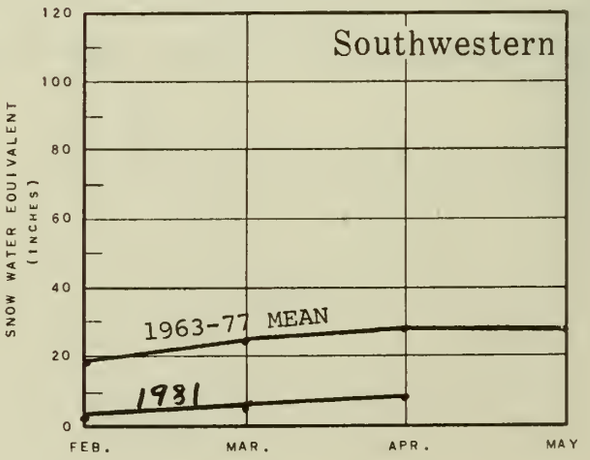












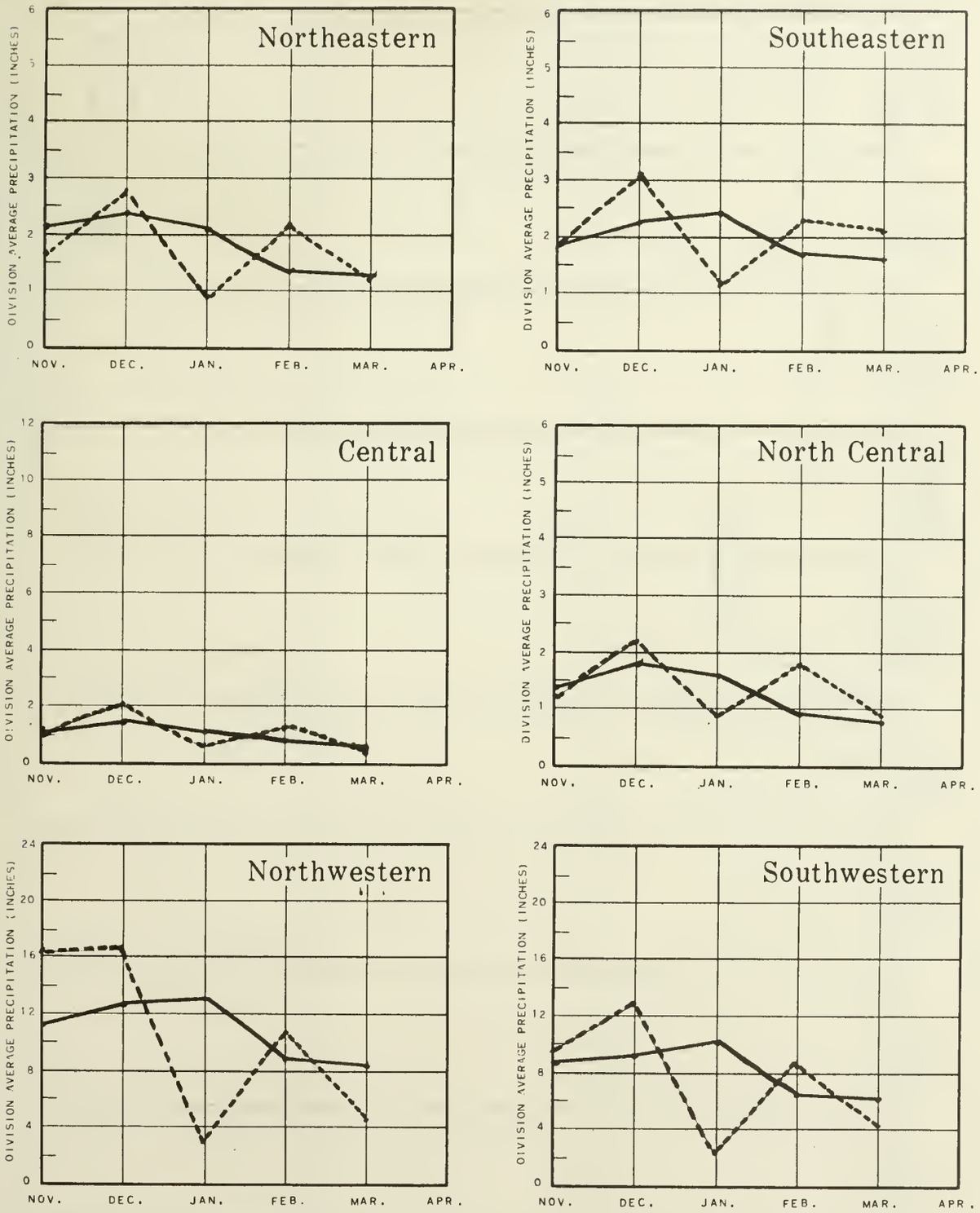
Selected Snow Survey Courses by Soil Conservation Service

M7-L-22028G

WASHINGTON VALLEY PRECIPITATION

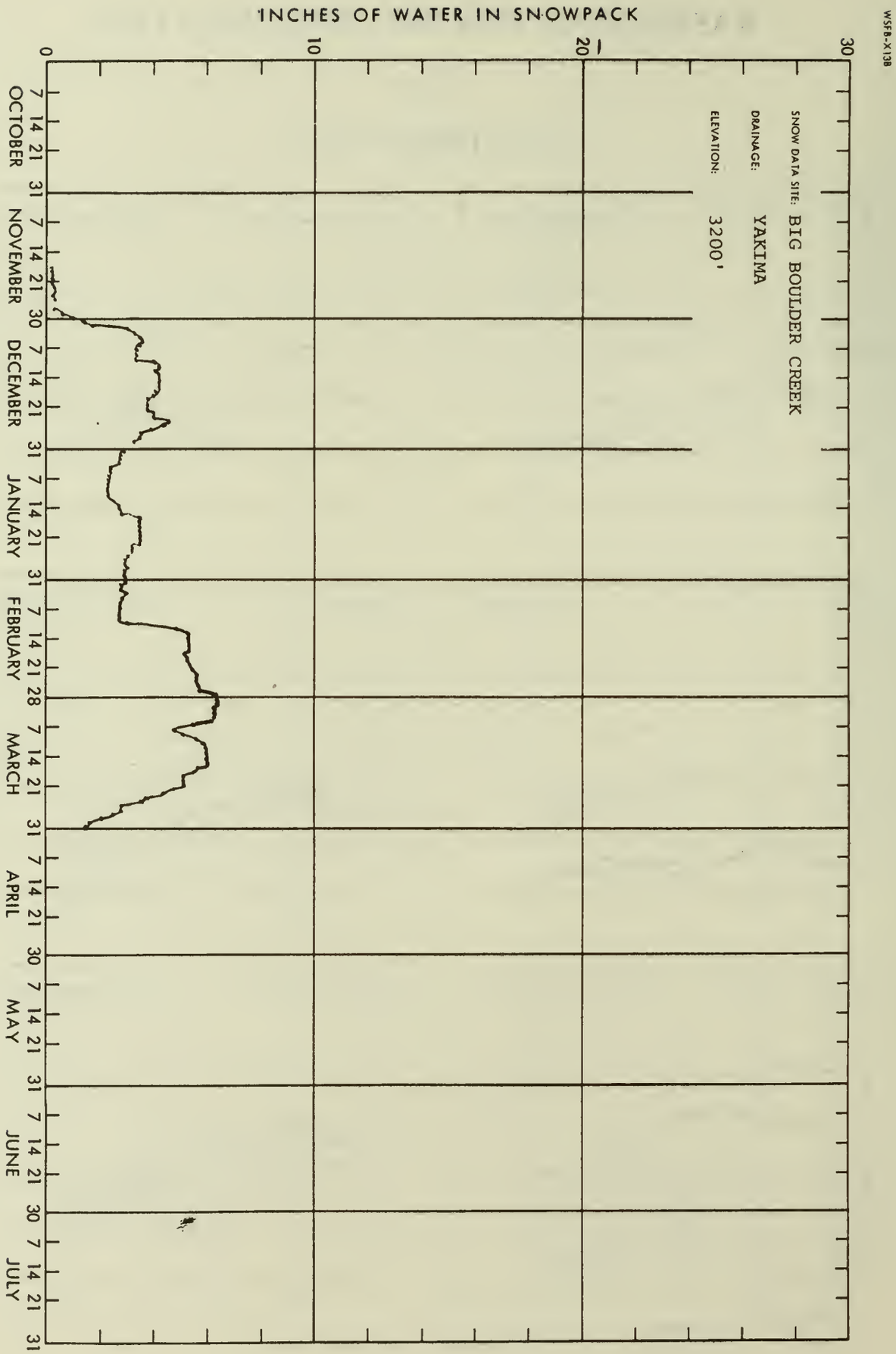
1981

DRAINAGE AREAS



Preliminary Analysis by National Weather Service

M7-L-22028H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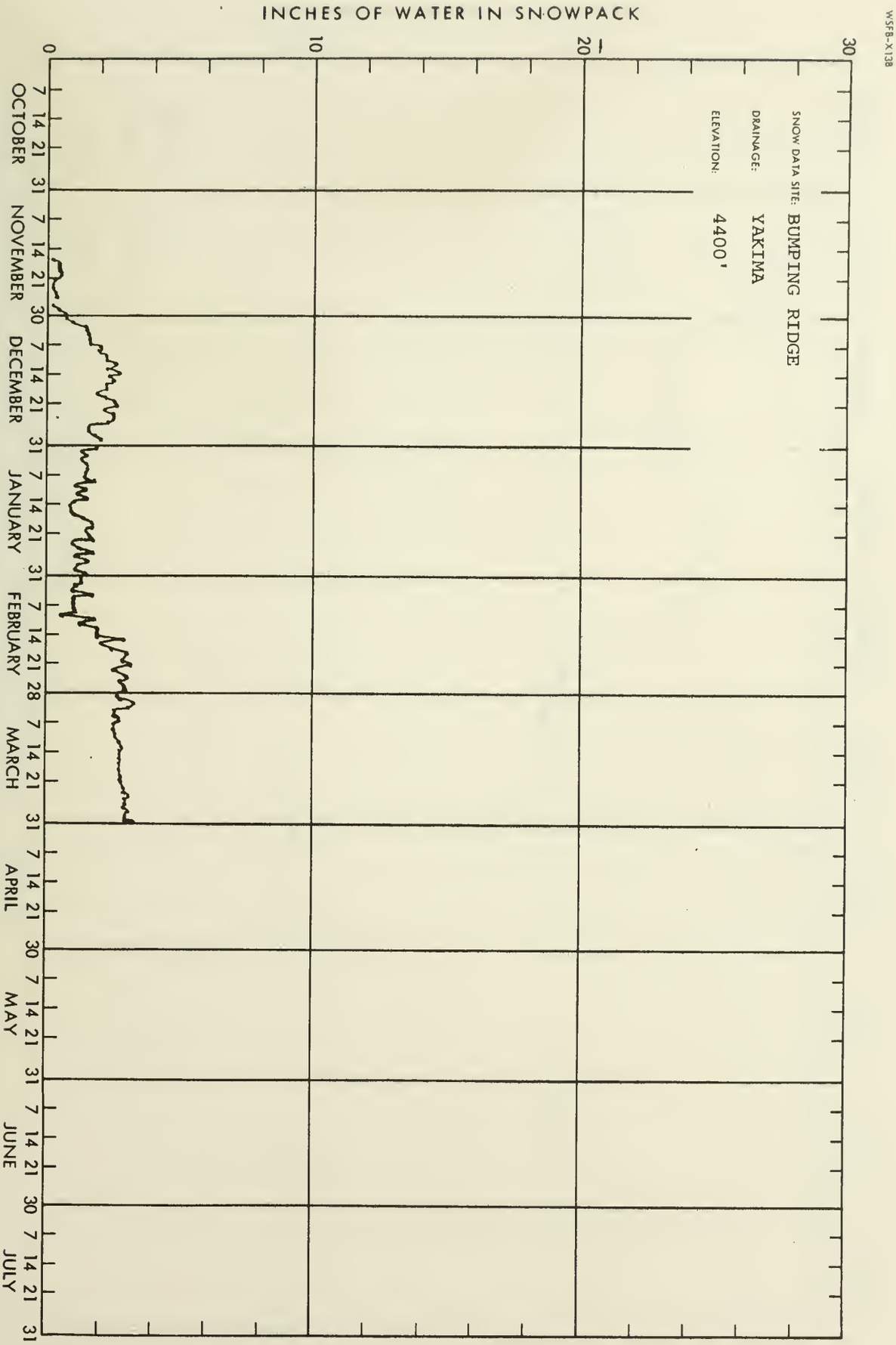
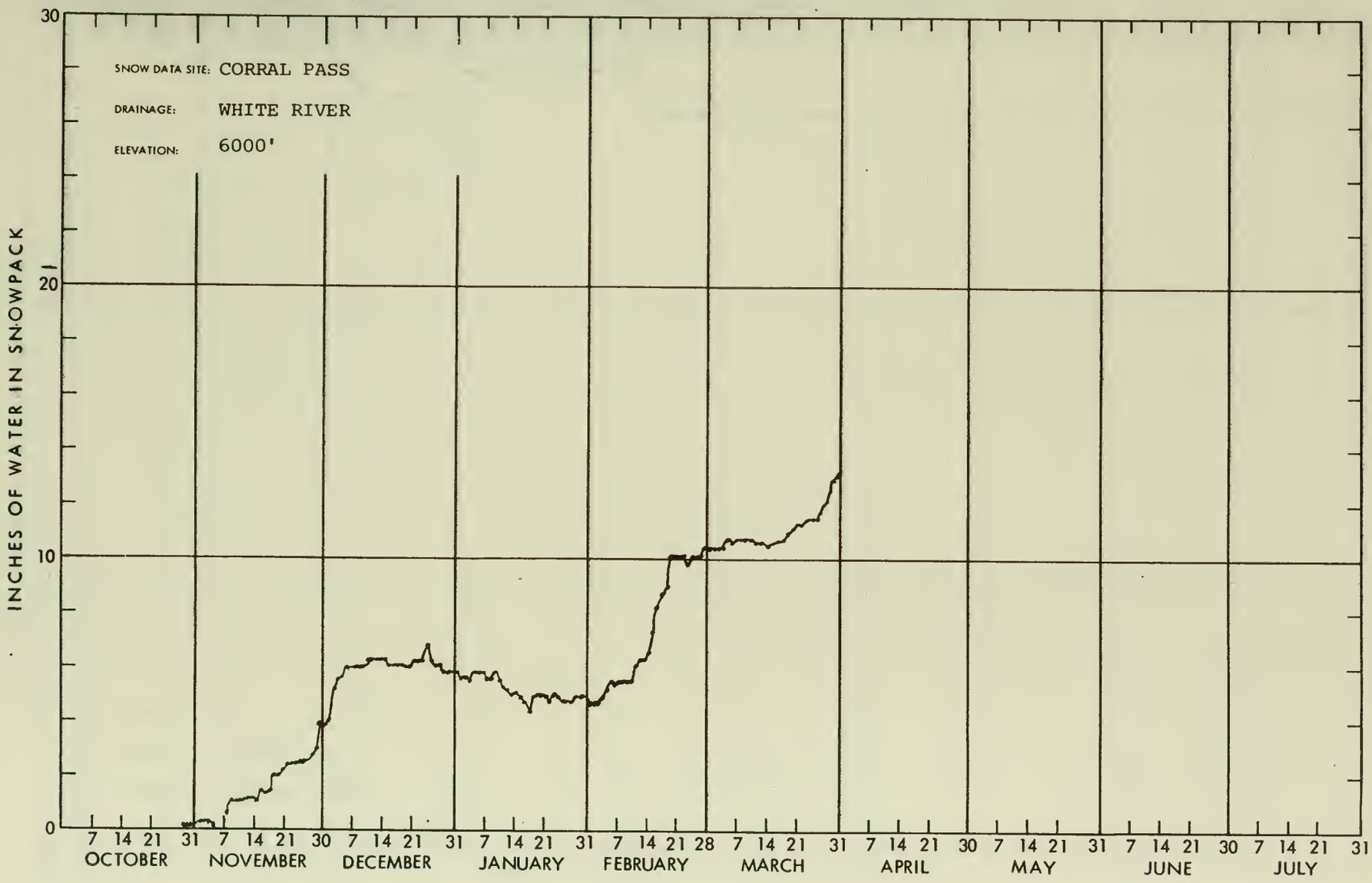
SNOW DATA SITE: BIG BOULDER CREEK
DRAINAGE: YAKIMA
ELEVATION: 3200'
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY


WSFB-X138
INCHES OF WATER IN SNOWPACK
SNOW DATA SITE: BUMPING RIDGE
DRAINAGE: YAKIMA
ELEVATION: 4400'
0
10
20
30
7 14 21 31
OCTOBER
7 14 21 30
NOVEMBER
7 14 21 31
DECEMBER
7 14 21 31
JANUARY
7 14 21 28
FEBRUARY
7 14 21 31
MARCH
7 14 21 30
APRIL
7 14 21 31
MAY
7 14 21 30
JUNE
7 14 21 31
JULY

WSFB-X13B


SNOW DATA SITE: CORRAL PASS
DRAINAGE: WHITE RIVER
ELEVATION: 6000'
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
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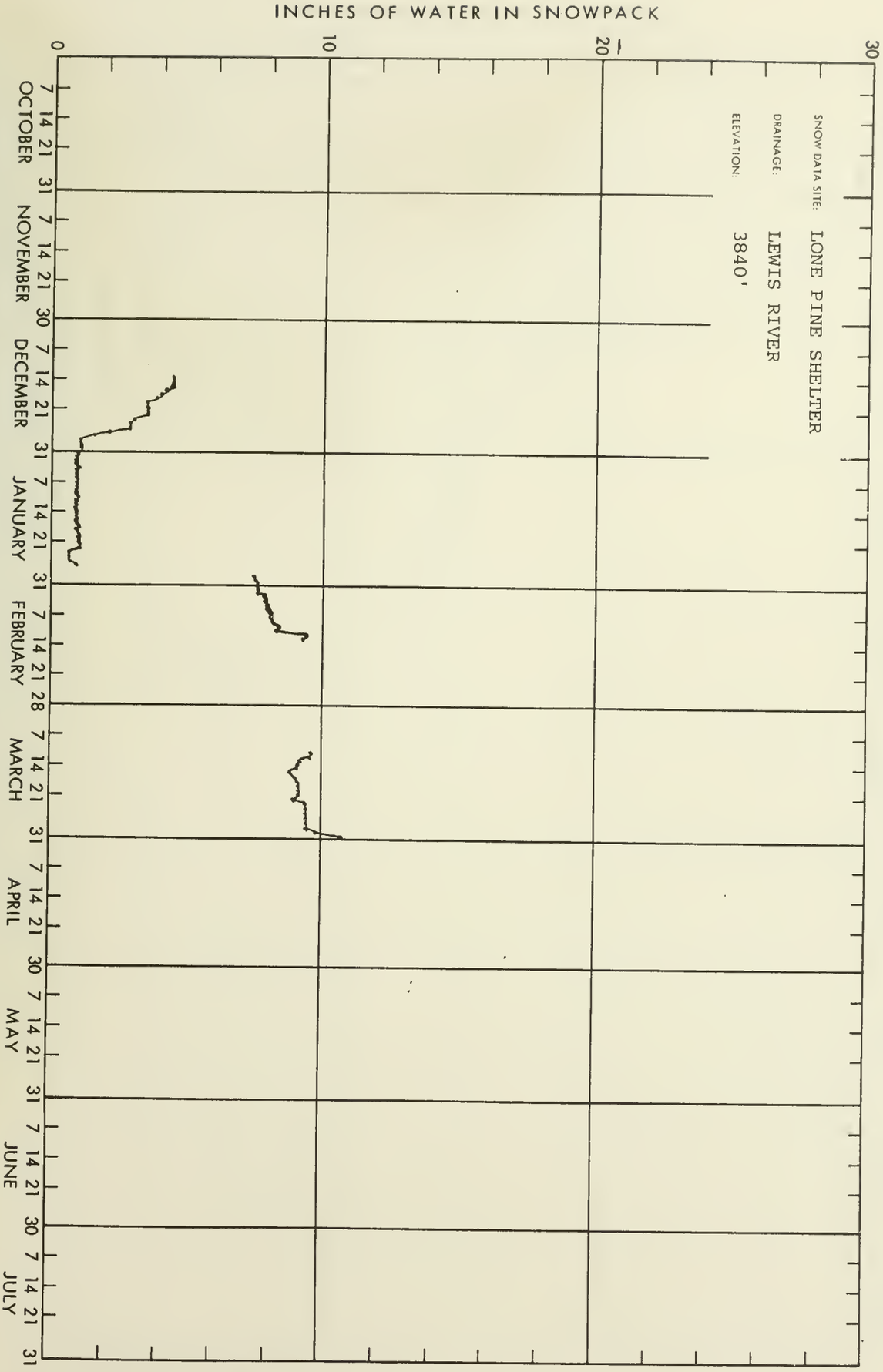
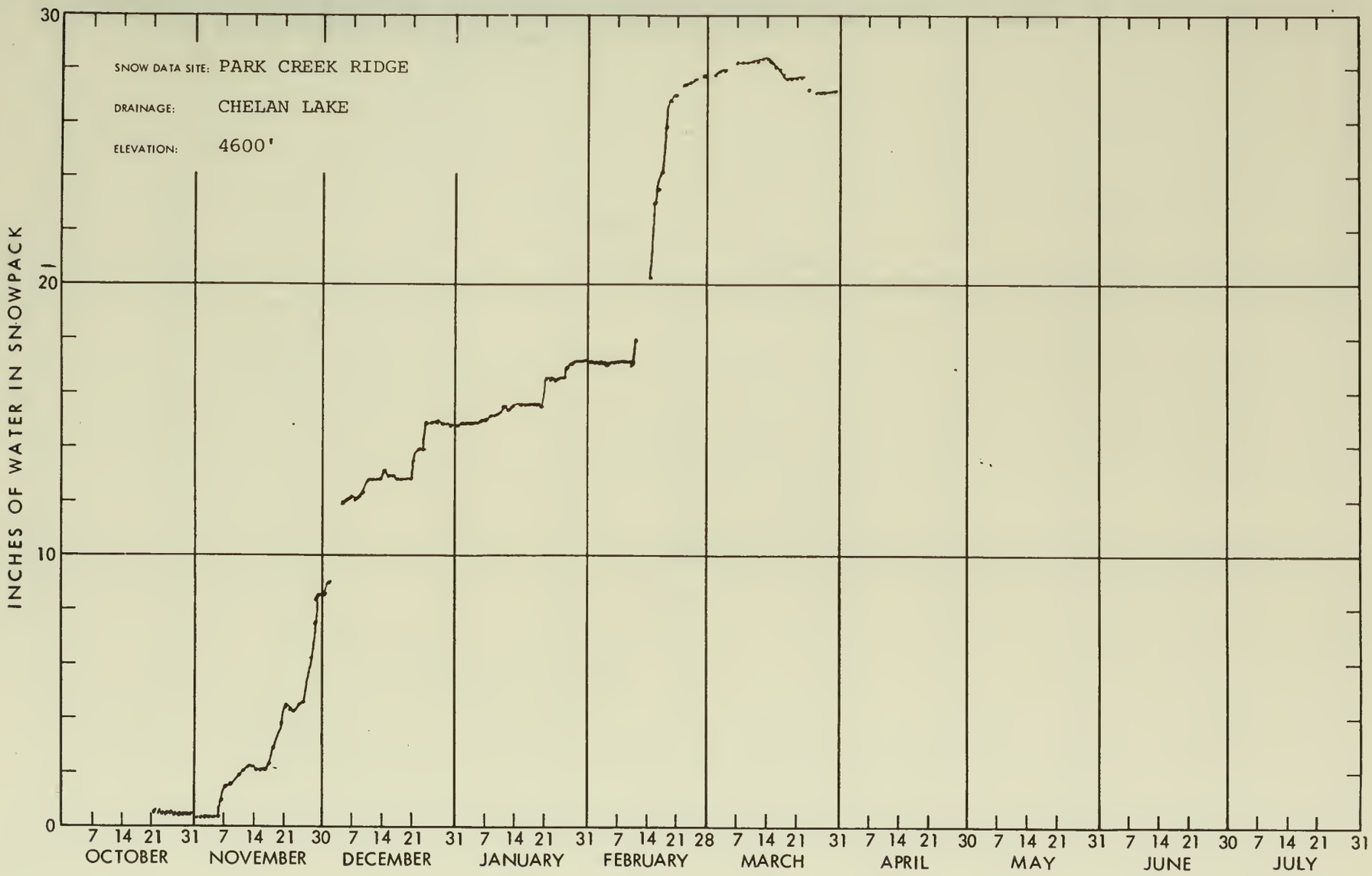
MARCH
APRIL
MAY
JUNE
JULY


W.S.F.B.-X.138
SNOW DATA SITE: LONE PINE SHELTER
DRAINAGE: LEWIS RIVER
ELEVATION: 3840'
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31 OCTOBER
7 14 21 30 NOVEMBER
7 14 21 31 DECEMBER
7 14 21 31 JANUARY
7 14 21 28 FEBRUARY
7 14 21 31 MARCH
7 14 21 30 APRIL
7 14 21 31 MAY
7 14 21 30 JUNE
7 14 21 31 JULY

WSFB-X13B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DRAINAGE: CHELAN LAKE
ELEVATION: 4600'
INCHES OF WATER IN SNOWPACK
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20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
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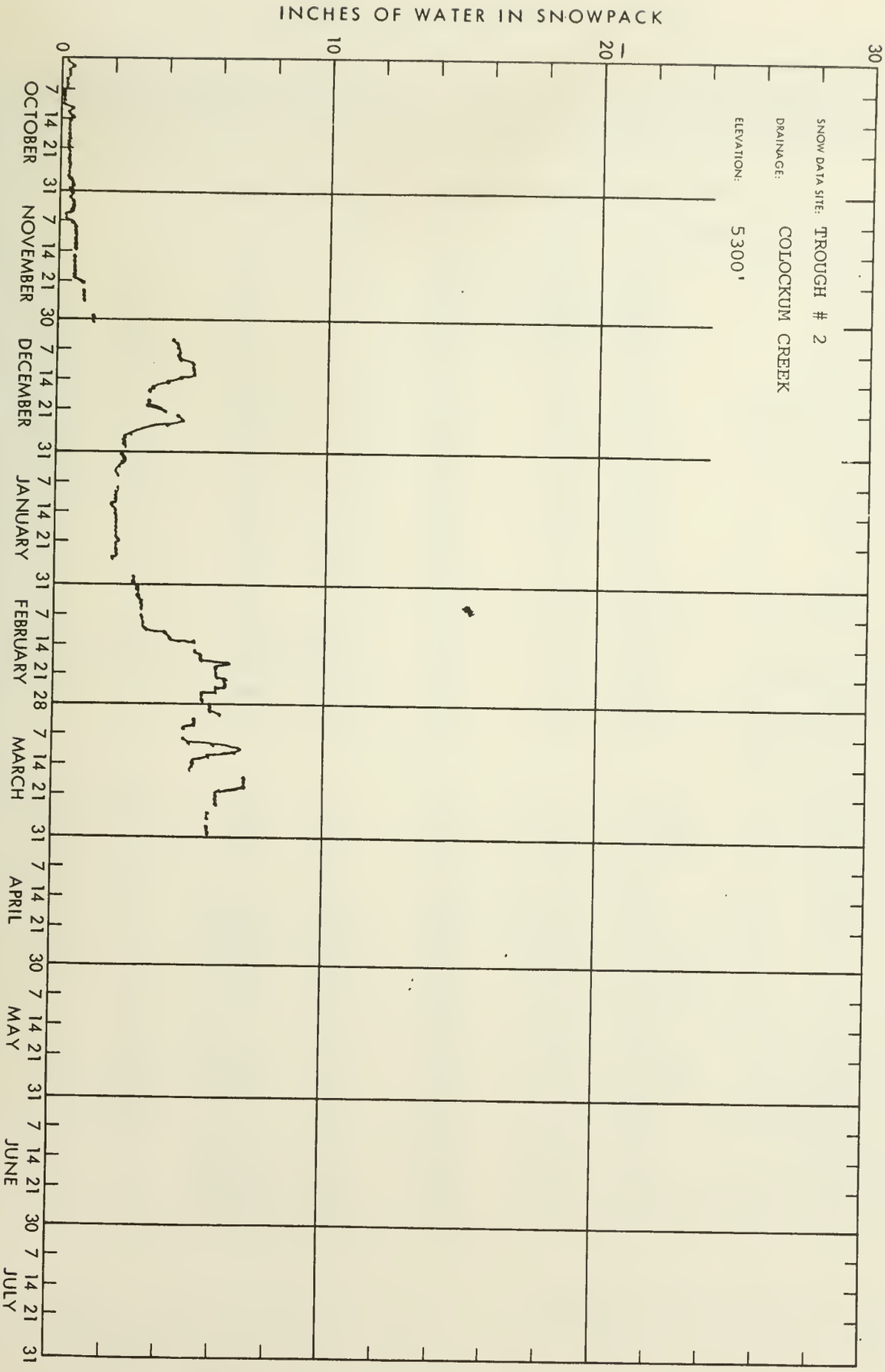
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DRAINAGE: COLOCKUM CREEK
ELEVATION: 5300'
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY

SNOW DATA TO APRIL 1, 1981 - APPENDIX 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
UPPER COLUMBIA DRAINAGE								
PEND OREILLE RIVER								
Baree Creek	15B11	5500	3/31	73	28.0	37.5	29.5	50.3
Baree Midway	15B16	4600	3/31	49	16.1	32.4	23.8	38.8
Baree Trail	15B15	3800	3/31	1	0.5	7.8	3.8	9.8
Benton Meadow	16A02	2344	3/30	0	0.0	4.6	0.0	5.0
Benton Spring	16A03	4900	3/30	26	9.5	15.9	7.8	20.2
Boyer Mountain	17A02	5250	3/30	42	15.3	21.5	11.4	27.2
Brush Creek Timber	14A13	5000	3/30	17	3.9	8.2	5.4	10.6
Bunchgrass Meadow	17A01	5000	3/30	65	23.2	28.6	13.4	30.7
Chewelah	17A04	4923	2/28	26	8.3	13.3	8.8	17.0
Heart Lake Trail	14C10	4800	3/31	28	8.2	18.4	11.6	23.8
Hoodoo Basin	15C10	6000	3/31	97	34.4	47.2	23.0	53.6
Hoodoo Creek	15C01	5900	3/31	84	28.5	42.8	22.4	49.9
Lookout	15B02	5250	3/16	46	17.2	24.8	15.4	38.6
			3/31	50	17.0	26.4	18.6	37.1
Mosquito Ridge	16A04A	5100	4/4	77	25.6	28.2	19.6	40.2
Nelson	2D04-Can	3050	3/31	20	8.0	15.3	8.7	15.6*
Schweitzer Bowl	16A06	4500	3/31	Plowed Out		25.1	17.8	30.9
Schweitzer Ridge	16A05	6100	3/31	90	38.1	52.4	21.4	47.8
Smith Creek	16A01	4800	3/30	82	34.2	39.6	25.1	48.8
Winchester Creek	17A03	2970	3/30	0	0.0	8.7	4.6	11.2
KETTLE RIVER								
Barnes Creek	2B06-Can	5300	4/2	54	16.2	15.0	18.0	20.9*
Big White Mtn.	2E03-Can	5500	3/31	46	15.2	17.0	14.1	20.6*
Bluejoint Mtn.	2E06-Can	7500	4/2	71	23.5	25.3	14.9	24.8*
Boulder Road	18A02	1450	3/26	0	0.0	0.0	0.0	2.4
Butte Creek	18A03	4070	3/26	20	5.8	9.4	5.8	9.5
Cabin Creek	18A08	3170	3/26	17	5.7	7.7	4.5	8.3
Carmi	2E02-Can	4100	3/31	10	3.5	4.7	4.6	6.6*
Farron # 1	2B02-Can	4000	3/30	29	10.4	14.2	6.8	13.3*
Farron # 2	2B02A-Can	4000	3/30	31	10.7	15.0	7.6	13.1*
Goat Creek	18A04	3595	3/26	1.7	1.1	6.5	1.8	5.3
Graystoke Lake	2F04-Can	5950	3/30	33	8.6	10.9	11.4	19.4*
Monashee Pass	2E01-Can	4500	4/2	33	10.9	9.6	12.4	14.0*
Old Glory Mountain	2B03-Can	7000	4/4	76	25.8	30.2	14.1	28.7*
Snow Caps Creek	18A05	2150	3/26	0	0.0	0.0	0.0	2.2
Snow Caps Trail	18A06	2720	3/26	0	0.0	5.4	1.4	4.9
Summit G. S.	18A07	4600	3/26	13	4.4	7.4	4.4	8.5
Trapping Creek Lower	2E05-Can	3050	3/31	0	0.0	2.9	2.2	3.9*
Trapping Creek Upper	2E04-Can	4450	3/31	19	5.7	8.7	8.6	10.2*

\# Average based on 1963-77 average
* Average for years of record

USDA-SCS-PORTLAND OREGON 1973

SNOW DATA TO APRIL 1, 1981 - APPENDIX 2

SNOW			THIS YEAR			PAST RECORD		
DRAINAGE BASIN and/or SNOW COURSE						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
COLVILLE RIVER								
Baird	17A06	3215	3/28	0	0.0	6.0	0.0	5.6
Carlson	18A09	2885	3/28	0	0.0	0.0	0.0	2.6
Chewelah	17A04	4925	3/28	26	8.3	13.3	8.8	17.0
Stranger Mountain	17A05	4990	3/28	7.2	2.0	12.6	8.0	14.5
Togo	18A10	3370	3/28	0	0.0	12.8	4.8	12.9
SPOKANE RIVER								
Above Burke	15B08	6100	3/31	25	8.4	17.4	15.3	24.7
Above Roland	15B07	4350	4/4	40	13.6	25.4	15.0	35.2
Below Roland	15B06	3770	4/4	0	0.0	12.4	5.1	16.5
Copper Ridge	16B02	4800	4/1	17	3.6	10.2	14.6	29.7
Forty-nine Meadows	15B03	5000		Late	Report	19.7	13.6	32.5
Fourth of July Summit	16B03	3100	3/30	0	0.0	3.9	6.0	8.8
Granite Peak	15B13A	6000		Late	Report	33.8	19.8	46.8
Kellogg Peak	16B05A	5560	4/4	45	13.6	25.0	15.2	35.4
Lookout	15B02	5250	3/16	46	17.2	24.8	15.4	38.6
			3/31	50	17.0	26.4	18.6	37.1
Lost Lake	15B14A	6000		Late	Report	40.3	25.2	61.8
Lower Sands Creek	16B01	3400	3/31	11	4.2	11.5	12.1	21.9
Mosquito Ridge	16A04A	5110	4/4	77	25.6	28.2	19.6	40.2
Roland Summit	15B05A	5200	4/4	44	13.0	30.2	16.0	40.1
Sherwin	16C01	3200	3/31	1	0.4	6.7	6.9	13.8
Sunset	15B09A	5600	4/4	62	17.0	22.0	18.0	36.2
SANPOIL RIVER								
Sherman Creek Pass	18A01	5350	3/27	32	9.4	11.4	6.0	15.0
OKANOGAN RIVER								
Aberdeen Lake	1F01A-Can	4300	3/31	8.3	2.6	5.8	5.1	6.2*
Blackwall Mountain	2G03-Can	6250	3/27	66	22.8	30.4	19.4	34.9*
Bouleau Lake	2F21-Can	4580	3/28	33	9.4	11.0	7.9	15.7*
Brenda Mine	2F18-Can	4800	3/27	29	7.8	11.9	7.5	13.9*
Brookmere	1C01-Can	3200	3/25	19	6.9	8.3	5.0	9.5*
Enderby	1F04-Can	6250	3/27	88	34.8	34.0	29.5	38.9*
Esperon Creek Lower	2F15-Can	4400	3/29	24	7.1	8.5	4.6	12.1*
Esperon Creek Middle	2F14-Can	4700	3/29	30	9.1	12.0	8.8	15.8*
Esperon Creek Upper	2F13-Can	5400	3/29	33	10.6	13.9	10.7	19.1*
Freezeout Meadow New	20A38	5000	4/1	48	17.6	23.7	16.0	41.0
Grayback Res.	2F08-Can	5225	3/27	18	5.7	8.1	5.7	9.3
Graystoke Lake	2F04-Can	5950	3/30	33	8.6	10.9	11.4	19.4*
Hamilton Hill	2G06-Can	4900	3/29	26	9.1	14.8	9.7	15.8*
Harts Pass	20A05A	6500	3/28	83	30.6	39.6	22.0	48.5

\# Average based on 1963-77 average
* Average for years of record

USDA SCS-PORTLAND OREGON 1973

SNOW DATA TO APRIL 1, 1981 - APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches) Last Year	1977	Avg. #
OKANOGAN RIVER (Cont.)								
Horseshoe Basin +	19A05a	7000	4/2	48	12.5	-	11.8	19.4
Isintok Lake	2F11-Can	5510	3/28	13	3.1	6.7	3.5	8.3*
Lightning Lake	3D02-Can	4000	3/30	17	5.9	10.6	5.5	14.4*
Lost Horse Mountain	2G04-Can	6300	4/1	27	6.8	10.0	6.5	9.4*
Loup Loup	19A07	4650	3/30	15	6.2	11.4	1.6	9.2
McCulloch	2F03-Can	4200	3/29	11	4.1	5.7	5.2	6.7*
Missezula Mountain	2G05-Can	5100	3/28	20	6.7	9.9	5.5	9.1*
Mission Creek	2F05-Can	6000	3/30	46	13.0	15.2	16.8	20.2*
Monashee Pass	2E01-Can	4500	4/2	33	10.9	9.6	12.4	14.0*
Mount Kobau	2F12-Can	5950	3/29	35	9.8	11.3	5.6	12.8*
Muckamuck +	19A09a	6390	4/1	Not Measured		15.5	6.2	17.9
Mutton Creek No. 1	19A01	5700	3/27	25	9.2	10.6	4.7	14.7
Mutton Creek No. 2 SP	19A11SP	6000	3/27	-	5.6	8.4	2.8	13.0
Nickel Plate Mtn.	2G02-Can	6200	3/30	15	2.6	8.7	7.0	8.3*
Oyama Lake	2F19-Can	4400	3/30	10	3.5	5.4	5.5	7.3*
Paysayten +	20A28a	4300	4/2	63	16.4	16.7	10.6	18.7
Postill Lake	2F07-Can	4500	3/30	24	6.8	7.2	8.1	9.1*
Rusty Creek	19A03	4000	3/27	8.7	3.8	6.0	0.6	6.6
Salmon Meadows	19A02	4500	3/27	23	9.2	11.7	3.1	10.3
Silver Star Mountain	2F10-Can	6050	3/29	59	20.2	23.8	19.2	28.6*
Starvation Mtn +	19A10a	6750	4/2	66	17.2	18.0	8.4	20.7
Summerland Reservoir	2F02-Can	4200	3/28	17	4.7	8.6	4.8	9.4*
Sunday Summit	2G01A-Can	4300	3/30	1.2	0.4	6.3	2.3	5.2*
Touts Coulee	19A06	2845	3/31	0	0.0	0.8	0.5	1.8
Trout Creek	2F01-Can	4700	3/30	9.8	2.9	6.2	4.2	7.6*
Vaseux Creek	2F20-Can	4600	3/30	17	7.2	6.3	5.0	6.7*
White Rocks Mountain	2F09-Can	6000	3/30	40	12.7	18.3	13.3	23.5*
METHOW RIVER								
Billy Goat Pass +	20A10a	6409	4/1	Not Measured		18.0	-	38.0
Dollar Watch +	20A29a	7000	4/1	Not Measured		-	-	31.9
Harts Pass	20A05A	6500	3/28	83	30.6	39.6	22.0	48.5
Horseshoe Basin +	19A05a	7000	4/2	48	12.5	-	11.8	19.4
Loup Loup	19A07	4650	3/30	15	6.2	11.4	1.6	9.2
Mutton Creek No. 1	19A01	5700	3/27	25	9.2	10.6	4.7	14.7
Mutton Creek No. 2 SP	19A11SP	6000	3/27	-	5.6	8.4	2.8	13.0
Rusty Creek	19A03	4000	3/27	8.7	3.8	6.0	0.6	6.6
Salmon Meadows	19A02	4500	3/27	23	9.2	11.7	3.1	10.3
CHELAN LAKE BASIN								
Cloudy Pass +	20A22a	6500	4/1	98	34.3	-	22.8	49.8
Little Meadows +	20A24a	5275	4/1	76	26.6	42.6	-	49.0
Lyman Lake	20A23A	5900	4/4	100	37.3	49.5	28.3	65.5
Park Creek Ridge	20A12A	4600	4/1	62	22.3	40.2	19.1	47.0
Rainy Pass	20A09	4780	3/28	64	23.1	33.0	22.8	43.7
Mirror Lake	20A39	5600	4/4	73	25.0	-	-	New

\# Average based on 1963-77 average

* Average for years of record

\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS-PORTLAND OREGON 1973

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SNOW DATA TO APRIL 1, 1981 - APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
ENTIAT RIVER								
Blue Creek G. S.	20B28a	5425	3/30	72	26.6	-	23.0	43.5
Brief	20B19	1600	3/28	0	0.0	3.5	0.0	4.6
Entiat Meadows +	20A33a	4540	3/30	78	28.9	21.0	19.2	49.3
Entiat River Trail +	20A34a	3325	3/30	10	3.8	16.6	8.6	18.2
Four Mile Ridge +	20B27a	6800	3/30	60	22.2	29.4	15.4	37.8
Fox Camp +	20A36a	6510	3/30	126	46.6	-	27.5	57.8
Pope Ridge	20B20	3540	3/27	19	7.2	16.9	4.1	18.9
Pugh Ridge +	20A32a	6725	3/30	73	27.0	34.0	15.7	37.5
Shady Pass	20A37	6200	3/31	54	20.1	24.5	10.3	32.9
Snow Brushy +	20A35a	3910	3/30	57	21.7	32.8	20.7	40.3
Tommy Creek +	20B21a	4900	3/30	28	10.4	22.4	7.0	27.3
WENATCHEE RIVER								
Berne-Mill Creek	21B23	2925	3/13	31	12.7	23.3	9.1	26.1
			3/30	26	10.0	26.2	12.0	29.8
Berne-Mill Creek New SP	21B41	3240	3/30	5.2	1.9	25.0	10.2	28.3
Blewett Pass No. 2	20B02	4270	3/27	8.6	3.0	14.4	4.4	16.9
Chiwaukum G.S.	20B16	1810	3/13	13	5.3	10.3	2.8	11.3
			3/30	0	0.0	10.1	0.0	10.2
Fish Lake	21B04	3371	3/13	27	11.1	-	-	-
			3/27	18	7.1	30.5	15.1	35.3
Lake Wenatchee	20B05	1970	3/13	12	4.7	10.8	4.6	15.4
			3/30	0	0.0	10.6	4.4	12.9
Leavenworth R. S.	20B17	1127	3/12	0	0.0	1.4	-	2.2
			3/27	0	0.0	0.0	0.0	0.6
Lyman Lake	20A23A	5900	4/4	100	37.3	49.5	28.3	65.5
Merritt	20B18	2140	3/13	12	4.6	12.0	4.7	16.0
			3/30	0	0.0	11.9	2.9	15.5
Stevens Pass	21B01	4070	3/13	42	17.3	39.7	19.1	52.3
			3/30	40	17.2	45.5	25.9	54.9
Stevens Pass Sand Shed	21B45	3700	3/13	23	9.5	27.2	10.3	37.5
			3/30	19	6.9	29.8	15.4	39.5
SQUILCHUCK CREEK								
Beehive Springs	20B03	4400	3/31	2.2	0.9	10.6	1.4	7.9
Scout-A-Vista	20B04	3400	3/31	6.7	2.7	10.7	0.3	7.3
STEMILT CREEK								
Jump-Off	20B08	4450	3/30	3.2	1.4	10.6	1.6	8.2
Stemilt Slide	20B06	5000	3/30	14	5.0	13.3	2.7	13.7
Upper Wheeler	20B07	4400	3/30	0	0.0	9.9	1.1	8.7
COLOCKUM CREEK								
Colockum Creek Upper	20B22	5300	3/30	10	3.9	12.4	3.4	15.1
Colockum Creek Lower	20B23	4300	3/30	4.5	1.8	11.8	1.2	9.9
Trough # 2	20B25SP	5310	3/30	18	7.0	19.0	3.2	New

Average based on 1963-77 average

+ Snow water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973

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SNOW DATA TO APRIL 1, 1981 - APPENDIX 5

SNOW			THIS YEAR			PAST RECORD		
DRAINAGE BASIN and/or SNOW COURSE						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
YAKIMA RIVER								
Ahtanum R. S.	21C11	3100	3/17	0	0.0	-	-	-
			3/26	0	0.0	10.0	0.0	6.0
Big Boulder Creek	21B09	3200	3/13	7.4	2.7	-	-	-
			3/27	0	0.0	13.7	7.3	20.1
Blewett Pass No. 2	20B02	4270	3/27	8.6	3.0	14.4	4.4	16.9
Bumping Lake	21C08	3450	3/13	4.4	1.8	17.9	2.9	17.1
			3/26	0	0.0	18.3	3.1	16.5
Bumping Lake New	21C36	3400	3/13	12	5.6	19.7	3.3	22.0
			3/26	0	0.0	21.2	4.4	21.7
Cayuse Pass	21C06	5300	3/31	100	36.9	-	38.1	90.3
Colockum Pass	20B09	5370	3/30	20	8.2	17.3	3.8	16.6
Cooke Creek	20B10	4123	3/30	0	0.0	4.8	0.0	5.1
Corral Pass	21B13	6000	4/3	63	22.4	31.8	16.5	43.4
Fish Lake	21B04	3371	3/13	27	11.1	-	-	-
			3/27	18	7.1	30.5	15.1	35.3
Green Lake	21C10	6000	3/17	38	16.1	-	-	-
			3/26	39	19.0	30.1	12.0	34.9
Grouse Camp	20B11	5385	3/31	24	9.8	20.8	4.9	16.6
High Creek	20B12	2930	3/31	0	0.0	6.9	0.0	3.6
Joe Lake +	21B46a	4624	3/12	69	27.7	-	-	-
			4/1	Not Measured		55.4	40.9	70.6
Lake Cle Elum	21B14M	2200	3/11	0	0.0	6.2	0.0	10.0
			3/24	0	0.0	2.7	0.0	6.7
Lemah Creek +	21B47a	3327	3/12	36	14.4	-	-	-
			4/1	15	5.3	32.6	21.1	46.6
Manashtash	20C01	3935	3/31	0	0.0	6.9	0.0	3.0
Morse Lake	21C17	5400	3/12	68	26.7	-	-	-
			3/30	75	30.0	54.0	19.9	59.6
Nanum	20B13	3875	3/31	Trace		8.8	0.0	8.2
Olallie Meadows	21B02	3625	4/3	34	8.5	36.6	22.6	51.9
Satus Pass	20D01	4030	4/1	0	0.0	6.6	0.0	9.6
Stampede Pass SP	21B10	3860	3/16	26	10.5	35.7	9.0	41.5
			3/26	23	9.5	44.9	14.4	43.9
Trail Creek	20B14	3360	3/30	0	0.0	0.0	0.0	0.0
Tunnel Avenue	21B08	2450	3/11	12	5.2	18.1	5.4	25.9
			3/24	4.2	1.8	21.7	7.5	24.6
Van Epps Pass +	20B26a	5925	3/12	65	26.1	-	-	-
			4/1	74	26.2	39.8	28.4	57.5
Walters Flat	20B15	3360	3/31	0	0.0	9.3	0.0	5.5
Waptus Lake +	21B49a	3024	3/12	39	15.6	-	-	-
			4/1	36	12.7	21.7	21.9	44.5
White Pass (E. Side)	21C28	4500	3/12	14	5.9	21.9	4.2	25.1
			3/25	13	6.3	23.5	7.4	26.0
AHTANUM CREEK								
Ahtanum R. S.	21C11	3100	3/17	0	0.0	-	-	-
			3/26	0	0.0	10.0	0.0	6.0
Green Lake	21C10	6000	3/17	38	16.1	-	-	-
			3/26	39	19.0	30.1	12.0	34.9

Average based on 1963-77 average

+ Snow water equivalent estimated from aerial stadia observation

USDA SCS-PORTLAND OREGON 1973

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SNOW DATA TO APRIL 1, 1981 - APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
LOWER COLUMBIA DRAINAGES								
ASOTIN CREEK								
Spruce Springs	17C04	5700	3/23	29	10.4	21.8	10.4	26.4
MILL CREEK								
Homestead	17C01	4030	3/26	4.9	0.5	9.1	4.8	8.9
Martin Springs	17C02	4400	3/26	9.8	1.0	12.9	7.3	14.9
High Ridge	18D19	4150	3/31	60	17.2	25.6	-	32.3
KLICKITAT RIVER								
Satus Pass	20D01	4030	4/1	0	0.0	6.6	0.0	9.6
LEWIS RIVER								
Lone Pine Shelter	21C26	3800	4/1	-	11.8	SNOTEL		43.2
Marble Mountain	22C05	3200	4/1	-	5.1	SNOTEL		40.2
Plains of Abraham	22C01	4400	4/1	-	7.1	SNOTEL		72.0
Sheep Canyon	21C10	4920	4/1	-	5.4	SNOTEL		New
Spencer Meadow	21C20	3400	4/1	-	10.3	SNOTEL		25.7
Surprise Lakes	21C13	4250	4/1	-	8.3	SNOTEL		53.7
COWLITZ RIVER								
Cayuse Pass	21C06	5300	3/31	100	36.9	-	38.1	90.3
Ryan Lake	22C08	3280	4/1	-	9.5	SNOTEL		New
White Pass (E. Side)	21C28	4500	3/12	14	5.9	21.9	4.2	25.1
			3/25	13	6.3	23.5	7.4	26.0
PUGET SOUND DRAINAGE								
WHITE RIVER								
Cayuse Pass	21C06	5300	3/31	100	36.9	-	38.1	90.3
Corral Pass	21B13	6000	4/3	63	22.4	31.8	16.5	43.4
Morse Lake	21C17	5400	3/12	68	26.7	-	-	-
			3/30	75	30.0	54.0	19.9	59.6
GREEN RIVER								
Airstrip	21B24	1800	3/30	0	0.0	0.0	0.0	2.1
Charley Creek	21B25	1200	3/30	0	0.0	0.0	0.0	0.0
Cougar Mountain SP	21B42	3200	4/3	14	3.3	14.3	10.4	25.1
Grass Mtn. No. 2	21B27	2900	3/30	1.7	1.2	13.3	8.8	24.3
Grass Mtn. No. 3	21B28	2100	3/30	0	0.0	0.0	2.2	4.9
Lester Creek	21B29	3100	3/30	6.0	1.8	21.9	12.8	27.5
Lynn Lake	21B50	4000	3/30	8.8	2.7	15.8	21.8	29.8
Sawmill Ridge	21B31	4700	4/1	45	13.2	27.6	17.1	41.6
Snowshoe Butte SP	21B43	5000	4/3	68	19.8	48.5	24.2	59.8
Stampede Pass SP	21B10	3860	3/16	26	10.5	35.7	9.0	41.5
			3/26	23	9.5	44.9	14.4	43.9
Twin Camp	21B30	4100	3/30	7.7	2.4	21.8	11.8	27.8

Average based on 1963-77 average

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SNOW DATA TO APRIL 1, 1981 - APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
CEDAR RIVER								
City Cabin	21B03	2390	3/27	0	0.0	9.4	7.8	20.0
Mt. Gardner	21B21	3300	3/27	0	0.0	10.2	10.2	19.8
Mt. Lindsay	21B16	2500	3/27	0	0.0	11.4	6.6	18.2
Mt. Washington New	21B15	3000	3/27	0	0.0	6.0	6.8	10.8
Rex River	21B17	2400	3/27	0	0.0	12.2	9.4	17.8
S. F. Cedar	21B06	3000	3/27	0	0.0	11.3	8.0	23.2
Tinkham Creek	21B20	3400	3/27	0	0.0	18.9	11.2	27.9
SNOQUALMIE RIVER								
Alpine Meadow	21B48	3500	3/27	13	4.9	33.9	24.1	55.2
Lake Elizabeth	21B19	2900	4/1	Not Measured		36.1	23.2	50.7
Olallie Meadows	21B02	3625	4/3	34	8.5	36.6	22.6	51.9
S. F. Tolt	21B18	1900	3/27	0	0.0	0.0	0.0	1.5
SKYKOMISH RIVER								
Lake Elizabeth	21B19	2900	4/1	Not Measured		36.1	23.2	50.7
Stevens Pass	21B01	4070	3/13	42	17.3	39.7	19.1	52.3
			3/30	40	17.2	45.5	25.9	54.9
Stevens Pass Sand Shed	21B45	3700	3/13	23	9.5	27.2	10.3	37.5
			3/30	19	6.9	29.8	15.4	39.5
SKAGIT RIVER								
Beaver Creek Trail	21A04	2200	3/28	0	0.0	8.9	3.6	15.4
Beaver Pass	21A01	3680	3/28	13	5.7	22.6	9.9	35.0
Brown Top Ridge +	21A28a	6000	3/28	101	39.0	47.2	30.4	74.2
Cloudy Pass +	20A22a	6500	4/1	98	34.3	-	22.8	49.8
Devils Park	20A04	5900	3/28	79	29.0	37.1	21.7	47.7
Freezeout Creek Trail	20A01	3500	3/28	0.8	0.3	9.8	4.8	13.7
Freezeout Meadows New	20A38	5000	3/28	48	17.6	23.7	16.0	41.0
Granite Creek	21A29A	3500	3/28	17	6.4	14.3	9.8	22.3
Harts Pass	20A05A	6500	3/28	83	30.6	39.6	22.0	48.5
Klesilkwa	3D03A-Can	3700	3/26	0	0.0	8.7	7.4	15.2*
Lightning Lake	3D02-Can	4000	3/30	17	5.9	10.6	5.5	14.4*
Lyman Lake	20A23A	5900	4/4	100	37.3	49.5	28.3	65.5
Meadow Cabins	20A08	1900	3/28	0	0.0	1.6	1.1	6.6
New Hozomeen Lake	21A30	2800	3/28	0	0.0	10.2	4.1	15.2
New Tashme	3D01A-Can	2500	4/1	0	0.0	6.7	4.8	10.9*
Rainy Pass	20A09	4780	3/28	64	23.1	33.0	22.8	43.7
Thunder Basin	20A07	4200	3/28	78	5.2	13.4	11.5	24.7
BAKER RIVER								
Dock Butte	21A11A	3800		Late Report		47.0	34.2	74.5
Easy Pass	21A07A	5200		Late Report		58.0	39.2	88.7
Jasper Pass	21A06A	5400		Late Report		65.0	47.8	92.6
Marten Lake	21A09A	3600		Late Report		55.0	43.8	82.8
Mount Blum +	21A18a	5800		Late Report		50.0	35.1	65.9
Panorama New	21A26	4300	3/14	35	17.3	-	29.6	72.8
			3/28	41	16.3	-	37.3	77.0

\# Average based on 1963-77 average
* Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
BAKER RIVER (Cont.)								
Rocky Creek	21A12A	2100		Late Report		6.0	15.6	34.4
Schreibers Meadow	21A10A	3400		Late Report		38.0	33.1	68.8
S. F. Thunder Creek	21A14A	2200		Late Report		6.0	3.1	7.9
Watson Lakes	21A08A	4500		Late Report		43.0	34.0	72.3
NOOKSACK RIVER								
Bald Mountain +	21A19a	4400	4/1	Not Measured		45.8	29.8	60.0
Canyon +	21A20a	5100	4/1	Not Measured		54.2	45.3	73.9
Glacier Creek	21A23	3700	3/28	0	0.0	11.1	17.6	19.9
Panorama New	21A26	4300	3/14	35	17.3	-	29.6	72.8
			3/28	41	16.3	61.0	37.3	77.0
Twin Lakes +	21A21a	5200	4/1	Not Measured		58.6	45.3	84.4
OLYMPIC PENINSULA								
DUNGENESS RIVER								
Deer Park	23B04	5200	3/31	19	6.4	15.7	12.6	22.9
MORSE CREEK								
Cox Valley	23B14	4500	3/30	34	11.0	28.5	22.2	44.3
ELWHA RIVER								
Hurricane	23B03	4500	3/30	12	2.8	10.7	14.1	26.9

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COOPERATIVE SNOW SURVEYS

Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

"The Conservation of Water begins with the Snow Survey"

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United States
Department of
Agriculture

Soil
Conservation
Service

Spokane,
Washington

Water Supply Outlook for Washington

as of MAY 1, 1981 . . .

in cooperation with

Department of Ecology
State of Washington

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TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SNOW SURVEYORS MAKING SPECIAL MEASUREMENTS OF THE SNOWPACK NEAR MT. ST. HELENS VOLCANO, WASHINGTON, APRIL, 1980.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4420 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U. S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W, Calgary, Alberta T3C 1A6.

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

NORMAN A. BERG
ADMINISTRATOR
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WASHINGTON, D C

Released by

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SPOKANE, WASHINGTON

In Cooperation with

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SOIL CONSERVATION SERVICE
360 U.S. COURTHOUSE
SPOKANE, WASHINGTON 99201

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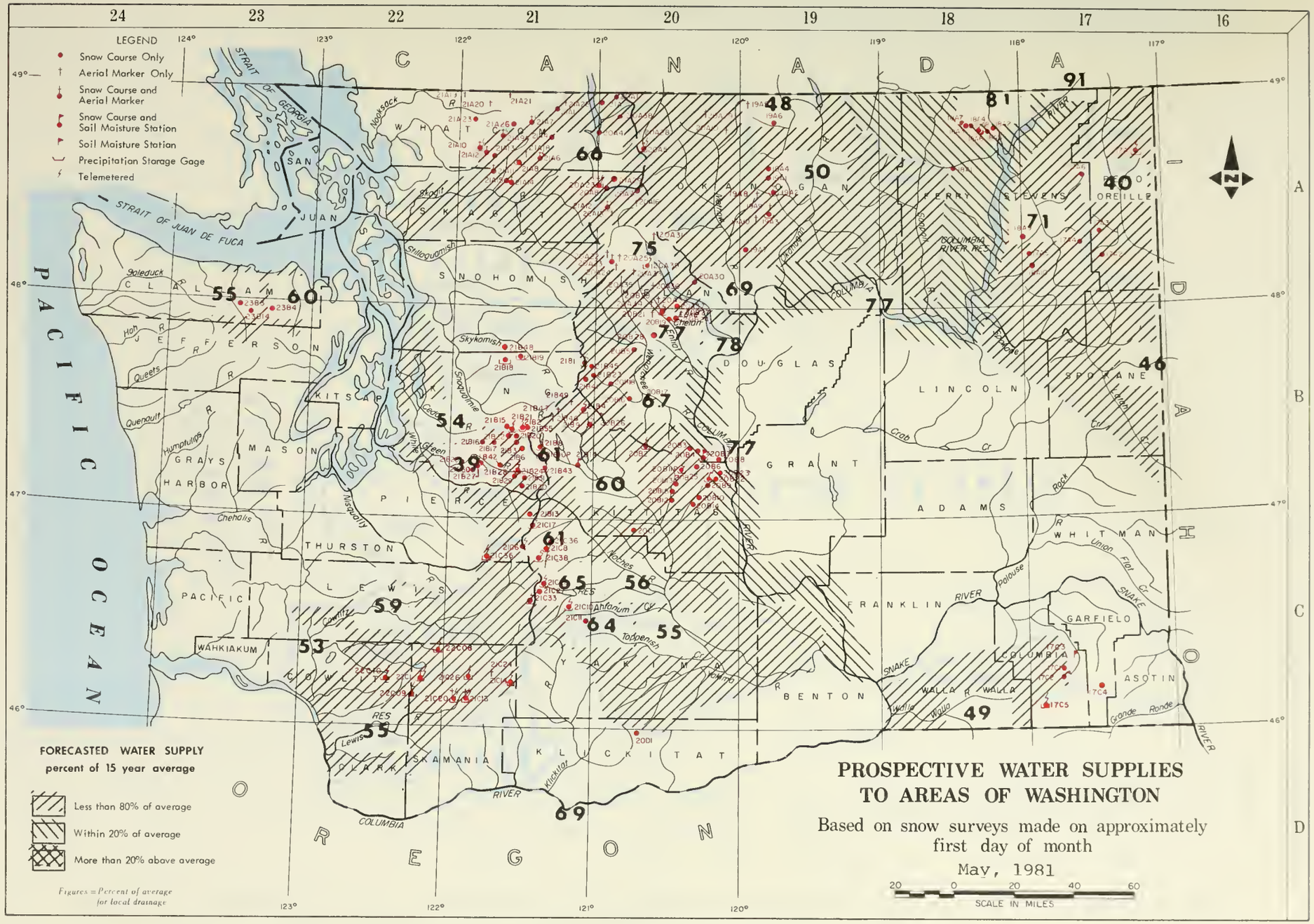

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	1 A1SP	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cobin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Toga	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanagan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2SP	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Tauts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dallas Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5SP	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23SP	18	31N	16E	5900
Park Creek Flat	20A13a	19	34N	16E	2220
Park Creek Ridge	20A12SP	18	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9SP	21	35N	17E	4780
Safety Harbor	20A30a	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Mirror Lake	20A39	30	31N	18E	5600
Entiat River					
Blue Creek G.S.	20B28a	19	28N	18E	5425
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4540
Entiat River Trail	20A34a	2	29N	17E	3325
Four Mile Ridge	20B27a	15	28N	19E	6800
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	3540
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540
Pugh Ridge	20A32c	34	30N	18E	6725
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3910
Tommy Creek	20B21a	10	28N	18E	4900
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	3170
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2 SP	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1SP	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough 2	20B25SP	10	20N	20E	5310
Colockum Creek					
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7SP	30	21N	20E	4400
Yakima River					
Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	21B9SP	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38SP	9	15N	12E	4600
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Fish Lake	21B4SP	28	24N	14E	3371
Green Lake	21C10SP	3	12N	13E	6000
Grouse Camp	20B11SP	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17SP	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8P	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28SP	2	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Touchet River					
Couse	17C3m	2	9N	40E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Touchet No. 2	17C5SP	6	7N	40E	5530
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
Lewis River					
Lone Pine Shelter	21C26SP	8	9N	7E	3800
Marble Mountain	22C09SP	26	8N	5E	3200
Plains of Abraham	22C1SP	35	9N	5E	4400
Spencer Meadow	21C20SP	16	8N	7E	3400
Surprise Lakes	21C13SP	14	7N	8E	4250
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Pigtail Peak	21C33SP	11	13N	11E	5900
Potato Hill	21C14SP	36	10N	10E	4500
Ryan Lake	22C08SP	9	10N	6E	3280
Sheep Canyon	22C10SP	12	8N	4E	4920

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Paradise Park (New)	21C35SP	13	15N	8E	5500
White River					
Corral Pass	21B13SP	30	18N	11E	6000
Green River					
Airstrip	21B24P	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B5C	22	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10SP	25	21N	11E	3860
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16P	31	22N	9E	2500
Mt. Washington	21B15P	8	22N	9E	3000
Rex River	21B17P	11	21N	9E	2400
South Fork Cedar	21B6P	24	21N	10E	3000
Tinkham Creek	21B20P	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2P	19	22N	11E	3625
South Fork Tolt	21B18P	26	26N	9E	1900
Olallie Meadows East	21B55SP	20	22N	11E	8700
Skykomish River					
Lake Elizabeth	21B19P	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows (New)	20A38	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hozameen Lake	20A7	19	40N	14E	2800
Thunder Basin	21A30	10	35N	14E	4200
Baker River					
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Racky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AF	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	31	29N	6W	4500
Elwha River					
Hurricane	23B3	36	29N	7W	4500

LEGEND

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course And Aerial Marker
21A7M	Snow Course And Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course And Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow

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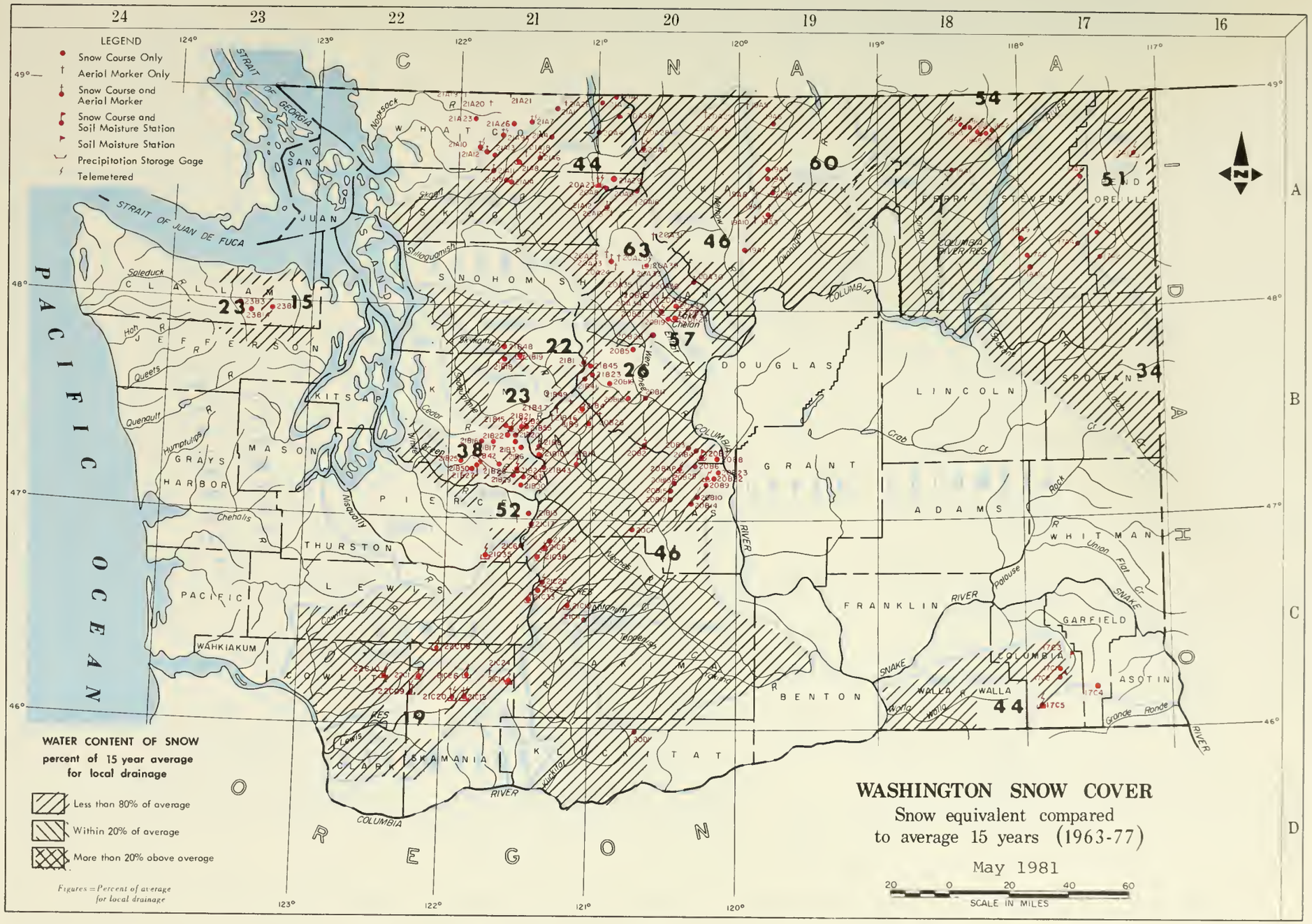

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UPPER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	1 A1SP	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2SP	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5SP	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Claudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23SP	18	31N	16E	5900
Park Creek Flat	20A13a	19	34N	16E	2220
Park Creek Ridge	20A12SP	18	34N	16E	4600
Petersons	20A16a	2	34N	17E	3730
Rainy Pass	20A9SP	21	35N	17E	4780
Safety Harbor	20A30a	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Mirror Lake	20A39	30	31N	18E	5600
Entiat River					
Blue Creek G.S.	20B28a	19	28N	18E	5425
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4540
Entiat River Trail	20A34a	2	29N	17E	3325
Four Mile Ridge	20B27a	15	28N	19E	6800
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	3540
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540
Pugh Ridge	20A32a	34	30N	18E	6725
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3910
Tommy Creek	20B21a	10	28N	18E	4900
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	3170
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2SP	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B1B	4	26N	16E	2140
Stevens Pass	21B1SP	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough #2	20B25SP	10	20N	20E	5310
Colockum Creek					
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7SP	30	21N	20E	4400
Yakima River					
Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	21B9SP	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38SP	9	15N	12E	4600
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Fish Lake	21B4SP	28	24N	14E	3371
Green Lake	21C10SP	3	12N	13E	6000
Grouse Camp	20B11SP	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46.	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17SP	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8P	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Wolters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28SP	2	13N	11E	4500

LOWER COLUMBIA DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Touchet River					
Couse	17C3m	2	9N	40E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Touchet No. 2	17C5SP	6	7N	40E	5530
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
Lewis River					
Lone Pine Shelter	21C26SP	8	9N	7E	3800
Marble Mountain	22C09SP	26	8N	5E	3200
Plains of Abraham	22C1SP	35	9N	5E	4400
Spencer Meadow	21C20SP	16	8N	7E	3400
Surprise Lakes	21C13SP	14	7N	8E	4250
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Pigtail Peak	21C33SP	11	13N	11E	5900
Potato Hill	21C14SP	36	10N	10E	4500
Ryan Lake	22C08SP	9	10N	6E	3280
Sheep Canyon	22C10SP	12	8N	4E	4920

PUGET SOUND DRAINAGE

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Nisqually River					
Paradise Park (New)	21C35SP	13	15N	8E	5500
White River					
Corral Pass	21B13SP	30	18N	11E	6000
Green River					
Airstrip	21B24P	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B5C	22	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10SP	25	21N	11E	3860
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16P	31	22N	9E	2500
Mt. Washington	21B15P	8	22N	9E	3000
Rex River	21B17P	11	21N	9E	2400
South Fork Cedar	2186P	24	21N	10E	3000
Tinkham Creek	21B20P	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2P	19	22N	11E	3625
South Fork Tolt	21B18P	26	26N	9E	1900
Olallie Meadows East	21B55SP	20	22N	11E	8700
Skykomish River					
Lake Elizabeth	21B19P	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows (New)	20A38	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	20A7	19	40N	14E	2800
Thunder Basin	21A30	10	35N	14E	4200
Baker River					
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Morten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AF	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	31	29N	6W	4500
Elwha River					
Hurricane	23B3	36	29N	7W	4500

LEGEND

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course And Aerial Marker
21A7M	Snow Course And Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course And Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow

WATER SUPPLY OUTLOOK

State of Washington

May 1, 1981

The snowstorms which occurred after snow surveys in April did nothing to improve the water supply situation. The normal maximum snow accumulation occurs about April 1. March 1 turned out to be the maximum snowpack for 1981, and is another indicator of the lack of snow. Forecasts throughout the state are below those issued on April 1, but only minimally. Rainfall this past month was about normal with stations fluctuating from slightly below normal to above normal. Reservoir storage is the bright spot, with most being well above average.

SNOW COVER

Snow course measurements taken near the first of May show the snowpack declining at above normal rates due mainly to the lack of snow as insulation. Layers within the pack break down more quickly during low snowpack years which contributes to streamflow at higher rates early in the year. The normal storage characteristic of snow is lost. Snowpacks in some parts of the state are less than they were in 1977 and range from a low of 15 percent on the Dungeness to a high of 63 percent of normal on the Chelan Basin. Areas with snowpacks below 1977 include the Lewis River at 19 percent as compared to 32 percent in 1977. Others with below 1977 percents are the Skykomish, the Nooksack, and the Dungeness. All of these basins contribute streamflow to the western slope of the Cascades or the Olympic Peninsula. Snowpack conditions over the rest of the state have remained about the same as last month. Most of these snowpacks are above that in 1977.

RESERVOIRS

The bright spot in the water supply picture remains the reservoir storage. All reservoirs are above normal with the exception of Gorge Reservoir which is only slightly below normal. Care will still need to be used so that if adequate snowpack and precipitation do not occur next year, sufficient water will still remain in storage to satisfy needs at that time. What this means is that conservation of water is necessary to reduce water use this year and improve carryover to 1982. The main use of stored water will be to satisfy late summer and fall water needs when streamflows will be well below normal. Most of this water was stored in December when rains washed out much of the snowpack that existed at that time.

PRECIPITATION

The National Weather Service reports precipitation that is above average over most of the state. Most areas in Washington have reported above average precipitation with the northwest slope of the Cascades well above average at 164 percent of normal. Washington, excluding the northwest portion, was 130 percent of normal. Two areas in the state had well below normal precipitaion. Central Washington was only 31 percent of normal and northcentral Washington was only 53 percent of normal, worsening an already bleak water supply picture. In Canada, the stations reported indicated a good month for precipitation at 163 percent of normal; only a few stations reported at or slightly below normal precipiation.

STREAMFLOW

April has been a month of little contribution to improve the water supply situation. The snow storms which occurred just after the first of April were not followed by any storms that would improve the snowpack. The soil moisture that built up during the fall will go quite a ways in supporting flows this spring, but flows will be poor in mid to late summer and fall. Forecasts have decreased slightly from last month. The mainstem of the Columbia is in the best shape with flows about 80 percent of normal, due mostly to adequate snowpacks in Canada. Forecasts in Washington range from a low of approximately 50 percent on several rivers to a high of 80 percent on the Kettle River. Streamflows during the month had a wide range. The low was 72 percent of normal on the Palouse with a high of 121 percent of normal on the Skagit. The greatest number of gaging stations indicate flows over most of the state are normal. This would mean that due to low snowpacks, melt is progressing at a faster rate - contributing to flows earlier in the year. Numerical forecasts can be found on the following pages.

STREAMFLOW FORECASTS - MAY, 1981

The following summarized runoff forecasts are based principally on mountain snow-cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. These forecasts are made as a product of the cooperative efforts of the Soil Conservation Service and the National Weather Service. Streamflow figures for 1980 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1981	Seasonal Streamflow in Thousands of Acre-Feet: % 15-yr. Avg.	Forecast period	1980	1979	1978	15-yr. Average 63-77
COLUMBIA BASIN							
COLUMBIA RIVER SYSTEM							
Columbia River	38800	91	May-Sept	35923	32506	40601	42769
at Birchbank 1/	30595	91	May-July	29192	25203	30622	33621
	21350	91	May-June	22730	17683	20674	23461
Columbia River	46900	76	May-Sept	52308	47880	58882	61503
at Grand Coulee 1/	38400	76	May-July	43612	39207	46573	50526
	28700	76	May-June	35163	30248	33599	37764
Columbia River	51700	77	May-Sept	56911	50210	64144	67050
bl. Rock Island Dam 1/	42795	79	May-July	48166	41612	51416	55578
	32035	77	May-June	39066	32364	37495	41605
Columbia River	61600	68	May-Sept	78563	66834	85792	90981
at The Dalles, OR 1/	51685	68	May-July	65325	55749	69552	76007
	39935	68	May-June	53710	45007	52090	58725
PEND OREILLE RIVER SYSTEM							
Pend Oreille River	5420	40	May-Sept	11197	10206	13067	13595
bl. Box Canyon	4915	40	May-July	10042	9662	11566	12286
	4090	40	May-June	8702	8783	9235	10230
KETTLE RIVER SYSTEM							
Kettle River	1300	81	May-Sept	1422	1133	1682	1616
nr. Laurier	1225	80	May-July	1334	1090	1504	1524
	1100	81	May-June	1190	1007	1313	1358
Colville River	60	71	May-Sept	76	43	84	84
at Kettle Falls	55	75	May-July	66	38	71	73
	50	77	May-June	57	35	63	65

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Basin, Stream and Station	Forecast Runoff 1981	% 15-yr. Avg.	Forecast period	1980	1979	1978	15-yr. Average 63-77
			Seasonal Streamflow in Thousands of Acre-Feet				
SPOKANE RIVER SYSTEM							
Spokane River **	975	46	May-Sept	1675	1924	1571	2102
at Post Falls, ID 2/	905	46	May-July	1507	1872	1474	1966
	845	46	May-June	1365	1793	1343	1833
OKANOGAN RIVER SYSTEM							
Similkameen River	695	48	May-Sept	1340	811	1377	1440
nr. Nighthawk	660	49	May-July	1251	751	1236	1339
	545	49	May-June	1108	667	1041	1114
Okanogan River	800	50	May-Sept	1418	840	1513	1595
nr. Tonasket	720	50	May-July	1290	756	1323	1441
	585	50	May-June	1107	662	1109	1180
METHOW RIVER SYSTEM							
Methow River	645	69	May-Sept	915	441	1045	938
nr. Pateros	595	69	May-July	854	395	930	864
	485	68	May-June	750	345	748	718
CHELAN RIVER SYSTEM							
Chelan River	890	78	May-Sept	933	675	1179	1139
at Chelan 3/	765	78	May-July	833	584	1008	982
	575	78	May-June	672	475	750	736
Stehekin River	615	75	May-Sept	643	511	795	823
at Stehekin	520	76	May-July	547	422	656	683
	385	77	May-June	425	332	469	497
Entiat	175	77	May-Sept	187	124	264	227
nr. Ardenvoir	165	81	May-July	171	110	237	204
	125	79	May-June	143	94	185	159
WENATCHEE RIVER SYSTEM							
Wenatchee River	785	67	May-Sept		785	1115	1172
at Plain	695	67	May-July		704	975	1032
	525	67	May-June		596	749	778
Wenatchee River	1110	70	May-Sept	1201	1024	1490	1595
at Peshastin	965	68	May-July	1087	932	1311	1414
	735	68	May-June	893	796	1010	1077
Stemilt Basin nr. Wenatchee	95*	69	May-Sept				138*
Icicle Creek	220	60	Apr-Sept				371
nr. Leavenworth	210	62	Apr-July				342
	175	63	Apr-June				279

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

* Thousands of Miners' Inches

** Forecasts made by Jack A. Wilson, Soil Conservation Service, Boise, Idaho.

Basin, Stream and Station	Forecast Runoff 1981	% 15-yr. Avg.	Forecast period	1980	1979	1978	15-yr. Average 63-77
			Seasonal Streamflow in Thousands of Acre-Feet				
YAKIMA RIVER SYSTEM							
Yakima River	75	61	May-Sept	78	99	88	122
nr. Martin 4/	65	59	May-July	66	89	75	110
	55	60	May-June	58	77	67	91
Yakima River	495	60	May-Sept	552	574	644	827
at Cle Elum 5/	440	60	May-July	476	543	532	735
	360	60	May-June	406	459	451	603
Yakima River	1000	55	May-Sept	1235	1115	1504	1815
nr. Parker 6/	880	55	May-July	1134	1014	1218	1601
	735	55	May-June	1011	906	1014	1340
Kachess River	55	52	May-Sept	77	76	73	105
nr. Easton 7/	50	51	May-July	70	70	67	98
	45	55	May-June	57	63	60	82
Cle Elum River	275	65	May-Sept		295	346	423
nr. Roslyn 8/	245	65	May-July	252	273	301	379
	195	65	May-June	216	239	247	302
Bumping River	80	61	May-Sept	101	90	100	132
nr. Nile 9/	70	59	May-July	92	83	89	119
	55	59	May-June	83	73	74	93
American River	70	61	May-Sept	95	71	93	114
nr. Nile	60	58	May-July	88	64	81	103
	50	61	May-June	79	56	65	82
Tieton River	145	65	May-Sept	176	159	191	223
at Tieton Dam 10/	120	66	May-July	144	128	152	183
	90	65	May-June	118	100	112	139
Naches River	430	56	May-Sept	514	492	560	772
nr. Naches 11/	380	56	May-July	479	446	495	684
	290	52	May-June	422	395	403	558
Ahtanum Creek	24	62	May-Sept			37	39
nr. Tampico 12/	21	60	May-July			32	35
	16	55	May-June			26	29

4/ Observed flow corrected for storage in Lake Keechelus.
5/ Observed flow corrected for storage in Keechelus, Kachess, and Cle Elum Lakes and diversion by Kittitas Canal.
6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation, and Sunnyside Canals.
7/ Observed flow corrected for storage in Lake Kachess.
8/ Observed flow corrected for storage in Lake Cle Elum.
9/ Observed flow corrected for storage in Bumping Lake.
10/ Observed flow corrected for storage in Rimrock Lake.
11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals, and City of Yakima.
12/ Observed flow of North and South Forks (Combined).

Basin, Stream and Station	Forecast Runoff 1981	% 15-yr. Avg.	Forecast period	1980	1979	1978	15-yr. Average 63-77
			Seasonal Streamflow in Thousands of Acre-Feet				
LOWER COLUMBIA RIVER SYSTEM							
Mill Creek	3.80	49	May-Sept		9.08	4.56	7.70
at Walla Walla	3.65	49	May-July		8.96	4.44	7.50
	3.55	49	May-June		8.85	4.36	7.30
Lewis River	530	55	May-Sept		671	798	960
at Ariel 13/	435	55	May-July		539	504	790
	360	55	May-June		459	408	654
Cowlitz River	1010	59	May-Sept		1205	1292	1717
Bl. Mayfield Dam	855	59	May-July		1010	1005	1445
	675	59	May-June		846	808	1144
Cowlitz River	1140	53	May-Sept		1522	1705	2170
at Castle Rock 14/	955	53	May-July		1268	1308	1804
	760	53	May-June		1051	1054	1432
OLYMPIC PENINSULA							
DUNGENESS RIVER SYSTEM							
Dungeness River	85	60	May-Sept		96	136	143
nr. Sequim	70	62	May-July		77	99	113
	50	63	May-June		58	67	79
PUGET SOUND							
SKAGIT RIVER SYSTEM							
Skagit River	1330	66	May-Aug		1352	1673	2017
at Newhalem 15/	1425	66	May-Sept		1477	1885	2161
	1170	66	May-July		1188	1460	1776
	850	66	May-June		932	1055	1290
ELWHA RIVER SYSTEM							
Elwha River	265	55	May-Sept		349	395	480
nr. Port Angeles	210	55	May-July		276	288	381
GREEN RIVER SYSTEM							
Green River bl. Howard Hanson Dam 16/	90	39	May-Sept	141	145	144	233
CEDAR RIVER SYSTEM							
Cedar River nr. Cedar Falls	40	54	Apr-Sept		70	59	93

13/ Observed flow corrected for storage in Lake Merwin, Yale, and Swift Reservoirs.
14/ Observed flow corrected for storage in Mayfield Reservoir.
15/ Observed flow corrected for storage in Diablo, Ross, and Gorge Reservoirs.
16/ Observed flow corrected for storage in Howard Hanson Dam.

RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured May 1 1981	1980	1979	Normal*
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	248.0	264.5	260.5	238.4
Columbia	Franklin D. Roosevelt Lake	5232.0	3198.4	2460.0	909.9	867.8
Columbia	Banks Lake	714.9	642.7	527.9	393.4	442.8
Oaknogan	Conconully Reservoir	13.0	9.1	6.5	10.3	7.7
Okanogan	Conconully Lake	10.5	10.0	9.0	10.5	8.0
Chelan	Lake Chelan	676.1	224.9	214.4	163.4	219.0
		YAKIMA				
Yakima	Keechelus Lake	157.8	159.6	131.5	117.0	113.8
Kachess	Kachess Lake	239.0	240.3	126.7	228.0	194.2
Cle Elum	Lake Cle Elum	436.9	365.1	378.0	180.9	295.9
Bumping	Bumping Lake	33.7	34.3	34.4	13.3	11.6
Tieton	Rimrock Lake	198.0	198.3	144.0	146.4	136.6
		PUGET SOUND				
Skagit	Ross Reservoir	1404.1	1086.3	644.0	731.6	711.5
Skagit	Diablo Reservoir	90.6	87.9	84.1	86.8	86.4
Skagit	Gorge Reservoir	9.8	7.9	7.5	8.0	8.1

1/ Based on Active Storage

* 15-yr. Average 1963-1977

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The Following tabulation of Washington stream basins presents the water content of the snow about May 1, 1981, as percent of the same date in 1980 and 1979 and average of record. We have also added a comparison of 1977 data with average for your information, since 1977 was considered a low water year.

Tributary Basin	No. of Courses Average	1981 Snow Water Expressed as percent of 1980	1979	1963-77 Avg.	1977 as percent of Average
		UPPER COLUMBIA BASIN			
Pend Oreille	9	76	62	51	26
Kettle	7	135	79	54	30
Spokane	4	81	42	34	26
Okanogan	30	157	157	60	32
Methow	4	78	475	46	26
Chelan	1	109	102	63	49
Entiat	8	103	96	57	22
Wenatchee	3	41	30	26	22
Yakima	6	63	53	46	12
		LOWER COLUMBIA BASIN			
Asotin	1	56	31	33	7
Mill Creek	1	100	-	44	-
Lewis	4	-	-	19	32
		PUGET SOUND			
White	2	73	63	52	28
Green	2	60	42	38	16
Snoqualmie	1	46	28	23	33
Skykomish	2	34	29	22	41
Skagit	9	78	65	44	36
Nooksack	1	49	43	28	-
		OLYMPIC PENINSULA			
Morse	1	54	43	33	-
Elwha	1	64	40	23	32
Dungeness	1	26	17	15	32

PRECIPITATION 1/

Division Average Observations and Departures

Drainage Divisions	FALL Sept-Oct 1980 Observed	FALL Sept-Oct 1980 2/ Departure	WINTER Nov 1980 - Mar 1981 Observed	WINTER Nov 1980 - Mar 1981 Departure	SPRING April 1981 Observed	SPRING April 1981 Departure
Columbia in Canada	3.76	-1.26	14.49	-1.02	2.79	+1.08
Pend Oreille - Spokane	2.75	-1.29	15.12	-2.43	3.10	+1.28
Northeastern Washington	2.37	-0.11	8.49	-0.91	1.54	+0.28
Southeastern Washington	2.33	-0.18	11.21	+0.78	1.67	+0.14
Central Washington	1.60	+0.63	5.50	+0.22	0.20	-0.45
North Central Washington	1.45	-0.14	7.16	+0.62	0.45	-0.40
Northwest Slope Cascades	7.35	-5.86	52.10	-3.29	10.90	+4.26
Southwest Slope Cascades	3.89	-4.79	38.40	-3.24	5.57	+0.95

Northeastern Washington	- Lower Spokane, Colville, Sanpoil, and Lower Kettle Drainages.
Southeastern Washington	- Touchet, Tucannon, and Palouse Drainages.
Central Washington	- Yakima, Wenatchee, and Chelan Drainages.
North Central Washington	- Methow and Okanogan Drainages.
Northwest Slope Cascades	- Puget Sound Drainages.
Southwest Slope Cascades	- Lower Columbia Drainages.

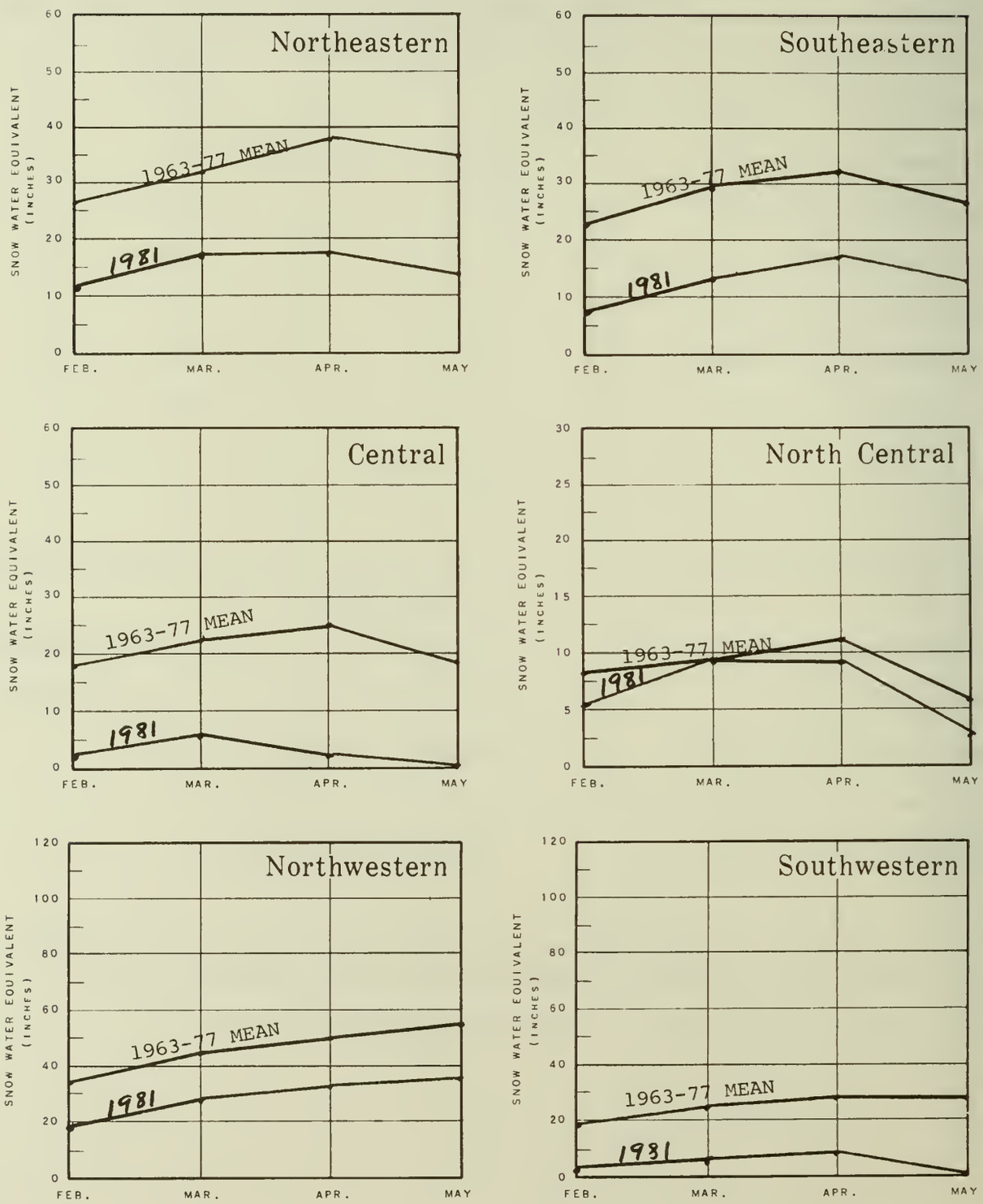
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorlogical Services of Canada and the National Weather Service.

2/ Departure from 15-year (1958-72) drainage division average.

WASHINGTON SNOW COVER

1981

DRAINAGE AREAS



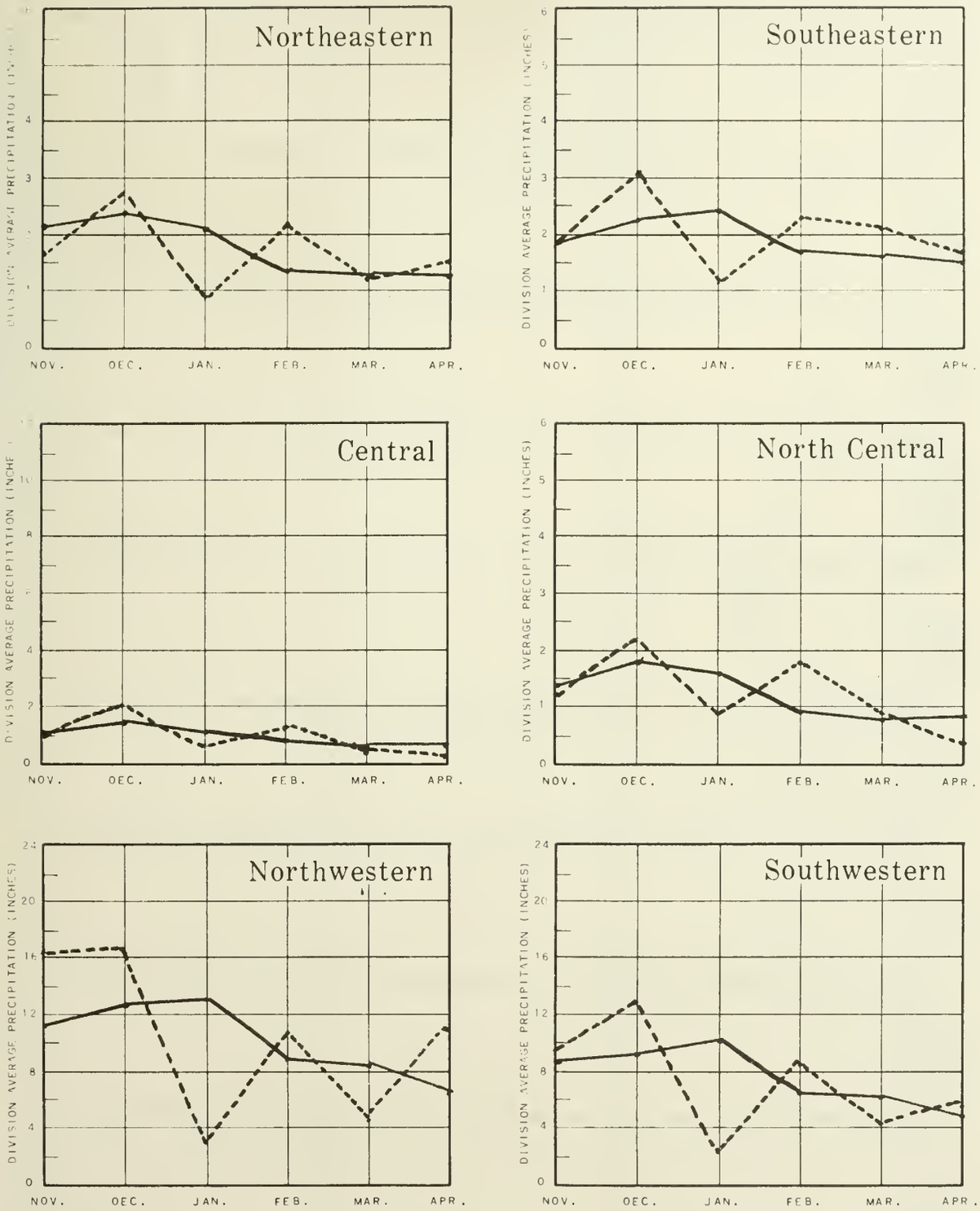
Selected Snow Survey Courses by Soil Conservation Service

M7-L-22028G

WASHINGTON VALLEY PRECIPITATION

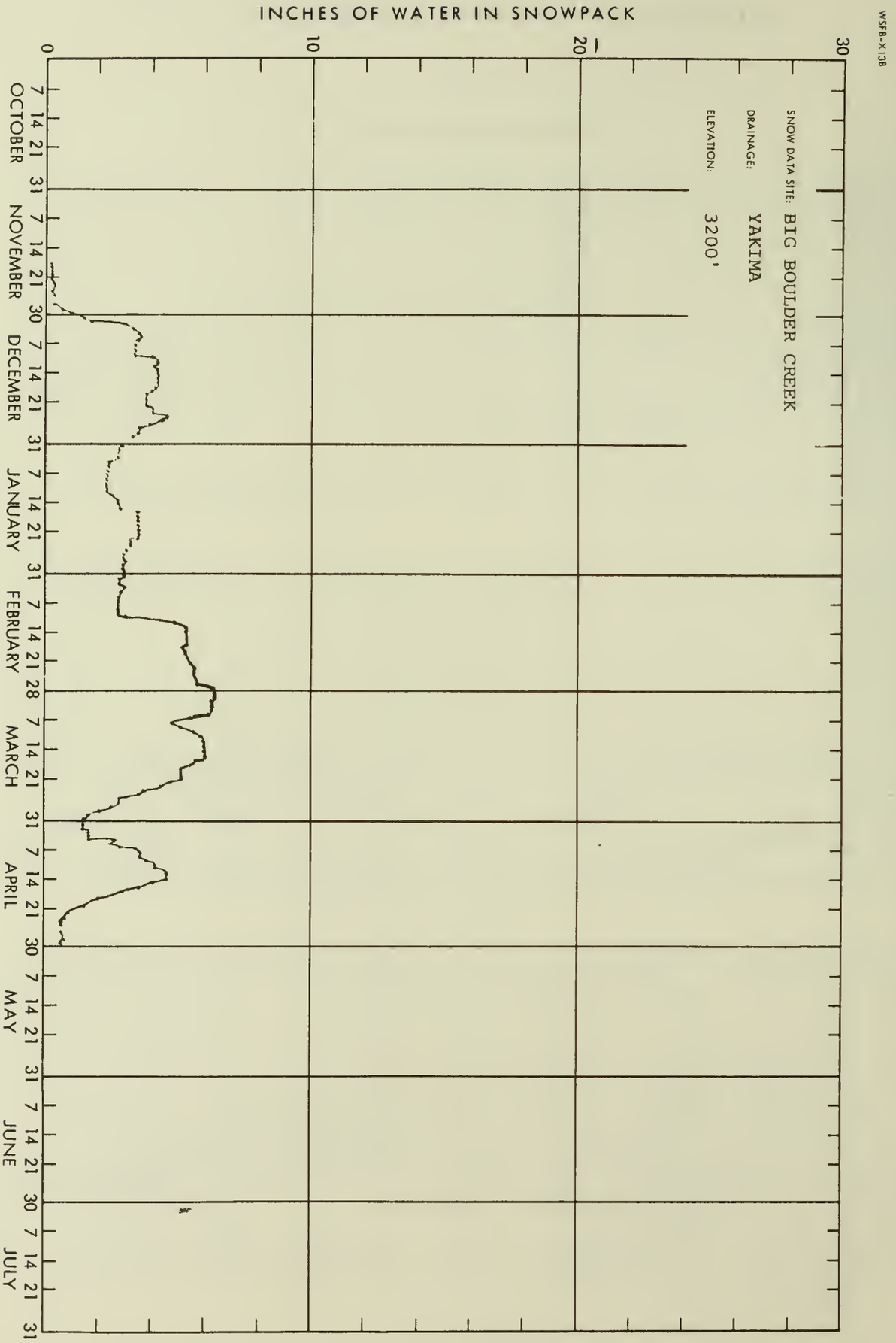
1981

DRAINAGE AREAS



Average: ———
1981 : - - - - -

Preliminary Analysis by National Weather Service


WSFB-X13B
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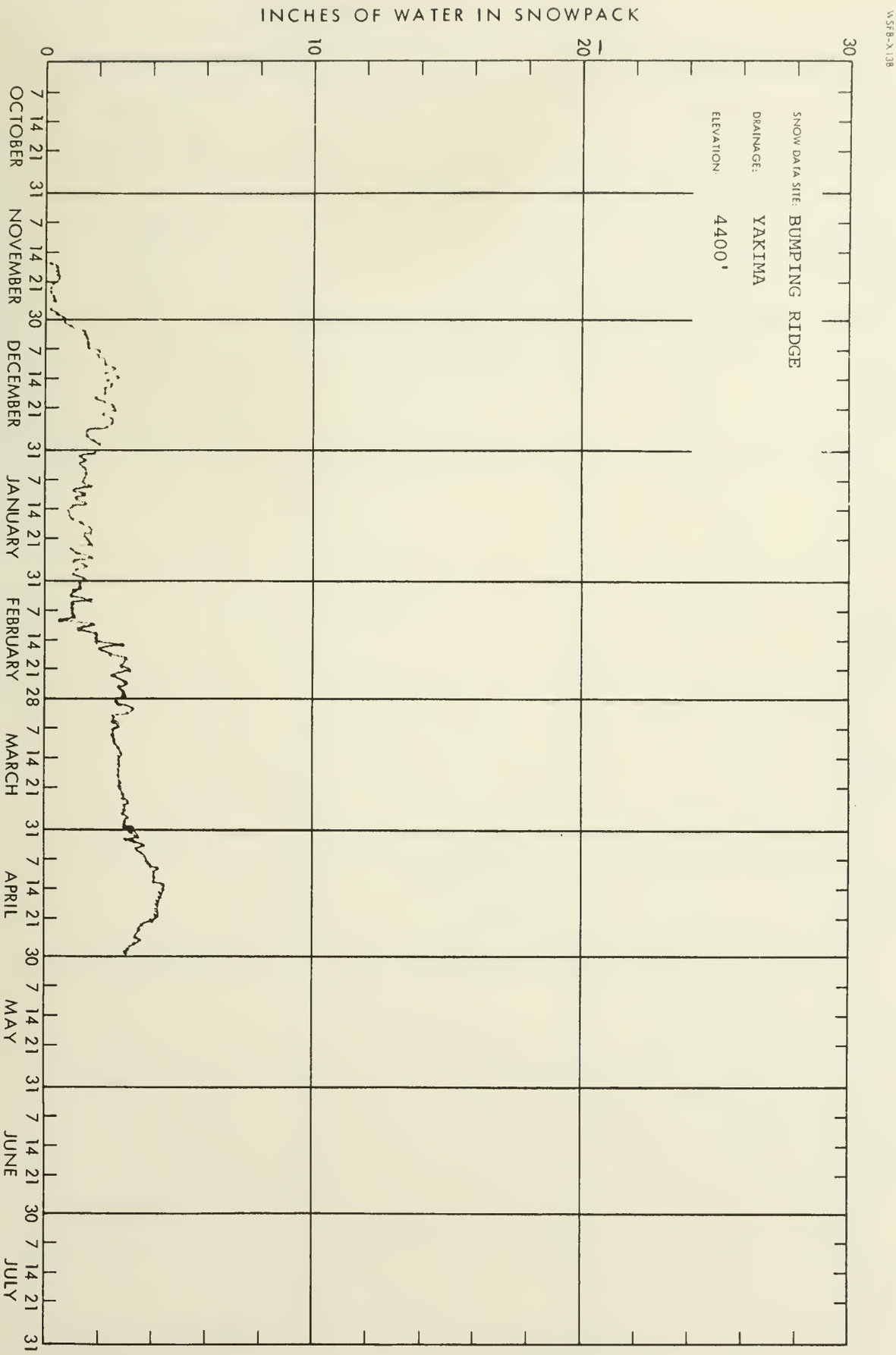
DRAINAGE: YAKIMA
ELEVATION: 3200'
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY


WSFB-X138
INCHES OF WATER IN SNOWPACK
SNOW DATA SITE: BUMPING RIDGE
DRAINAGE: YAKIMA
ELEVATION: 4400'
0
10
20
30
7 14 21 31
OCTOBER
7 14 21 30
NOVEMBER
7 14 21 31
DECEMBER
7 14 21 31
JANUARY
7 14 21 28
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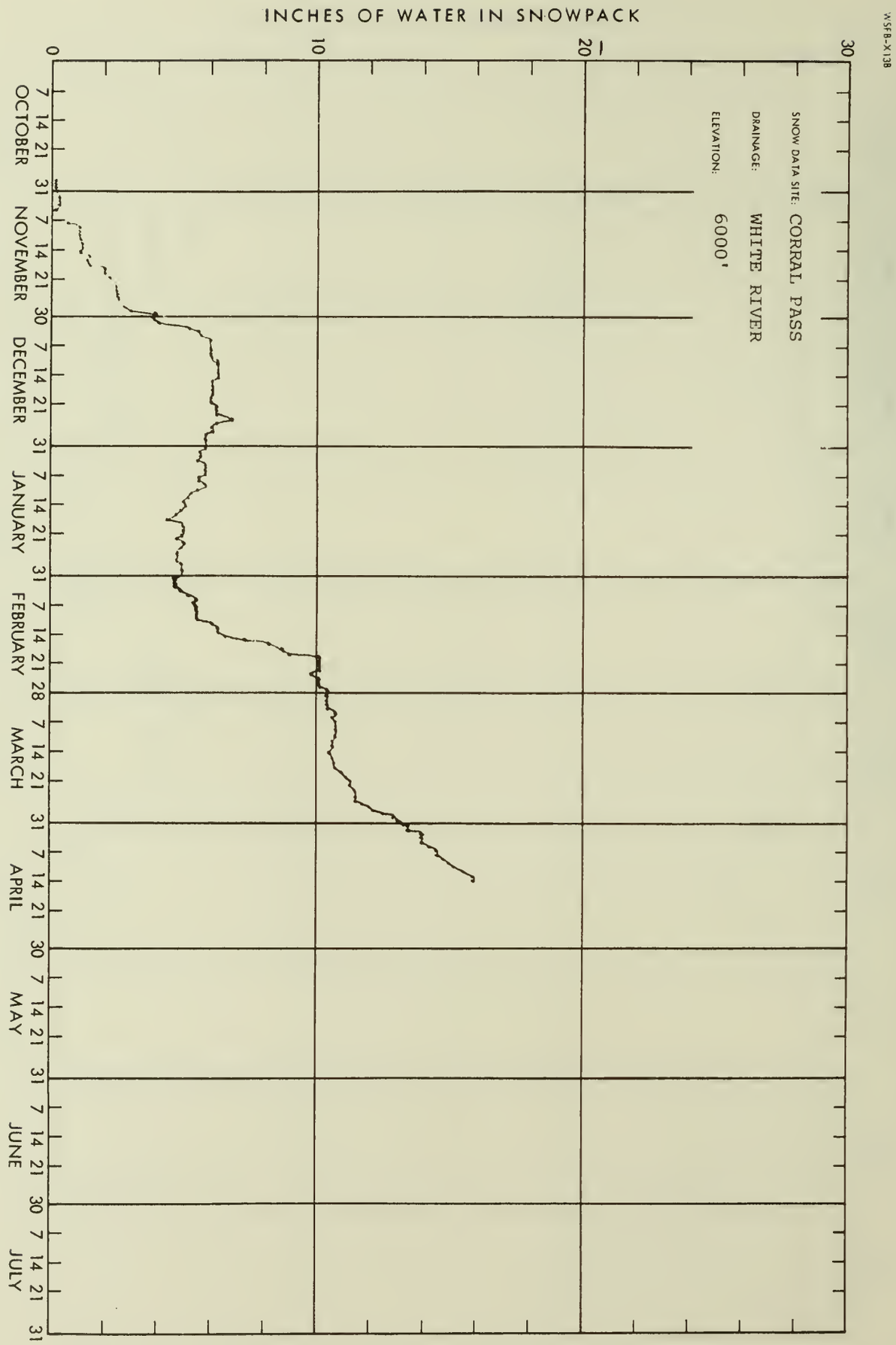
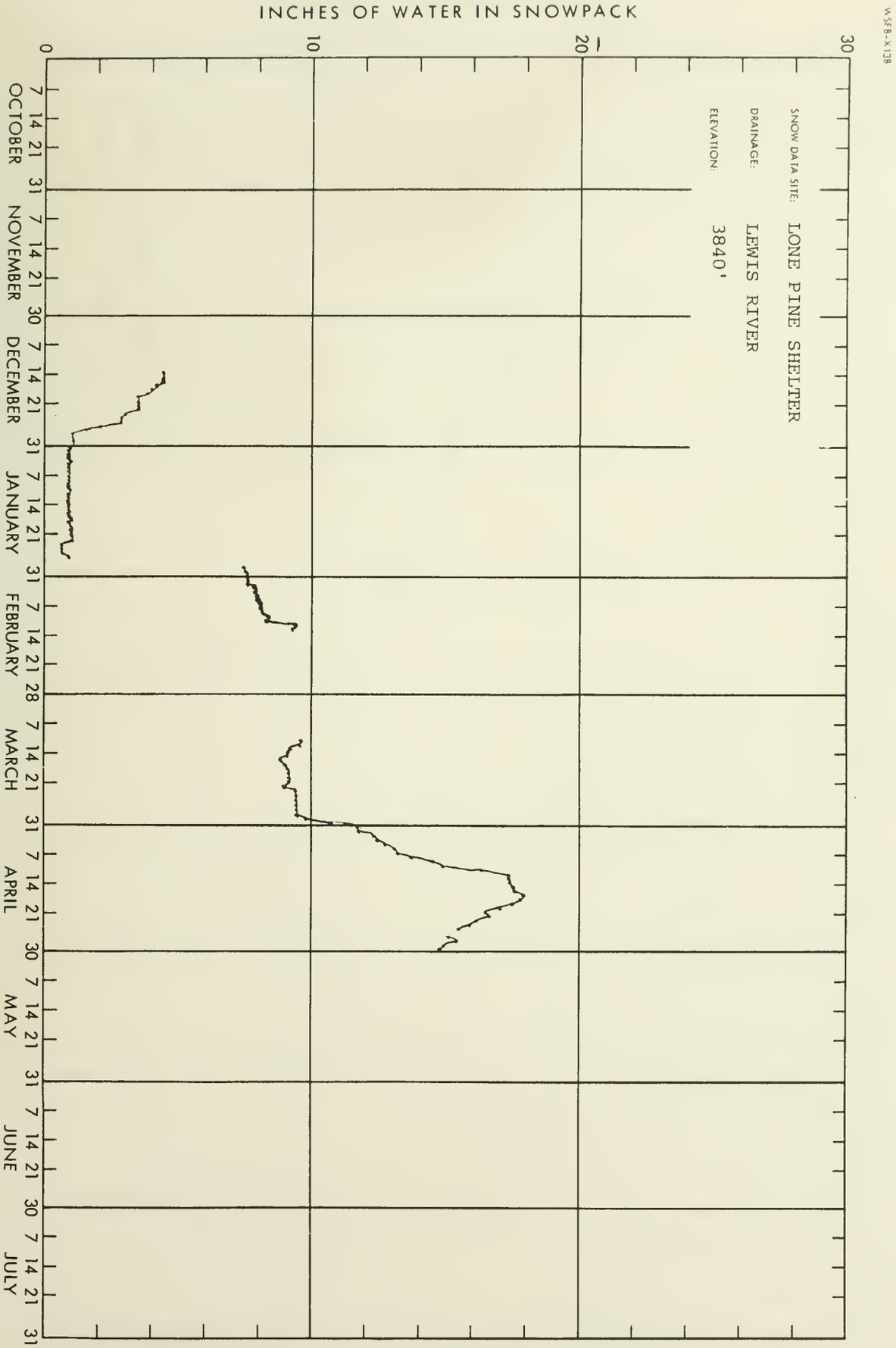
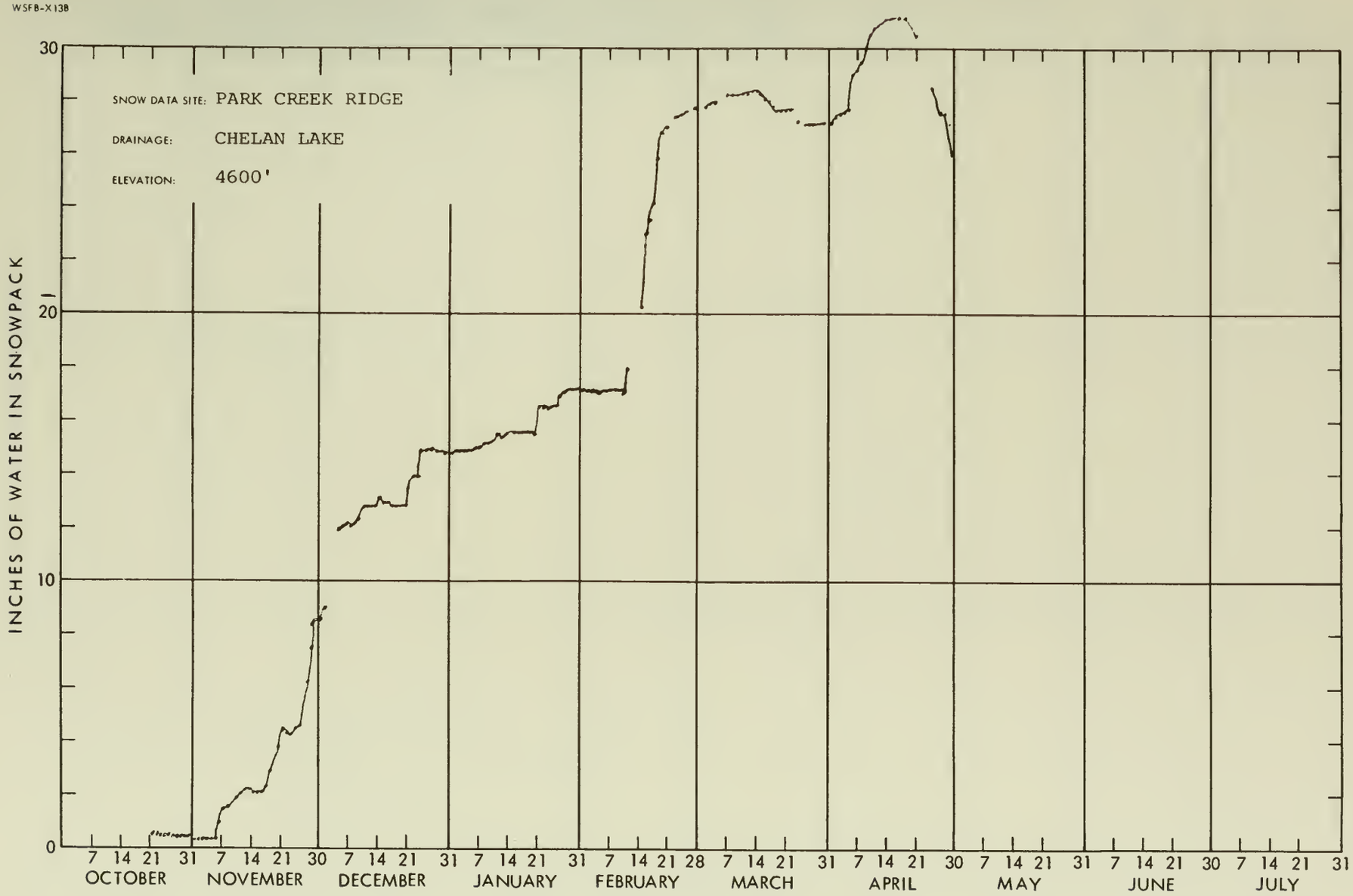
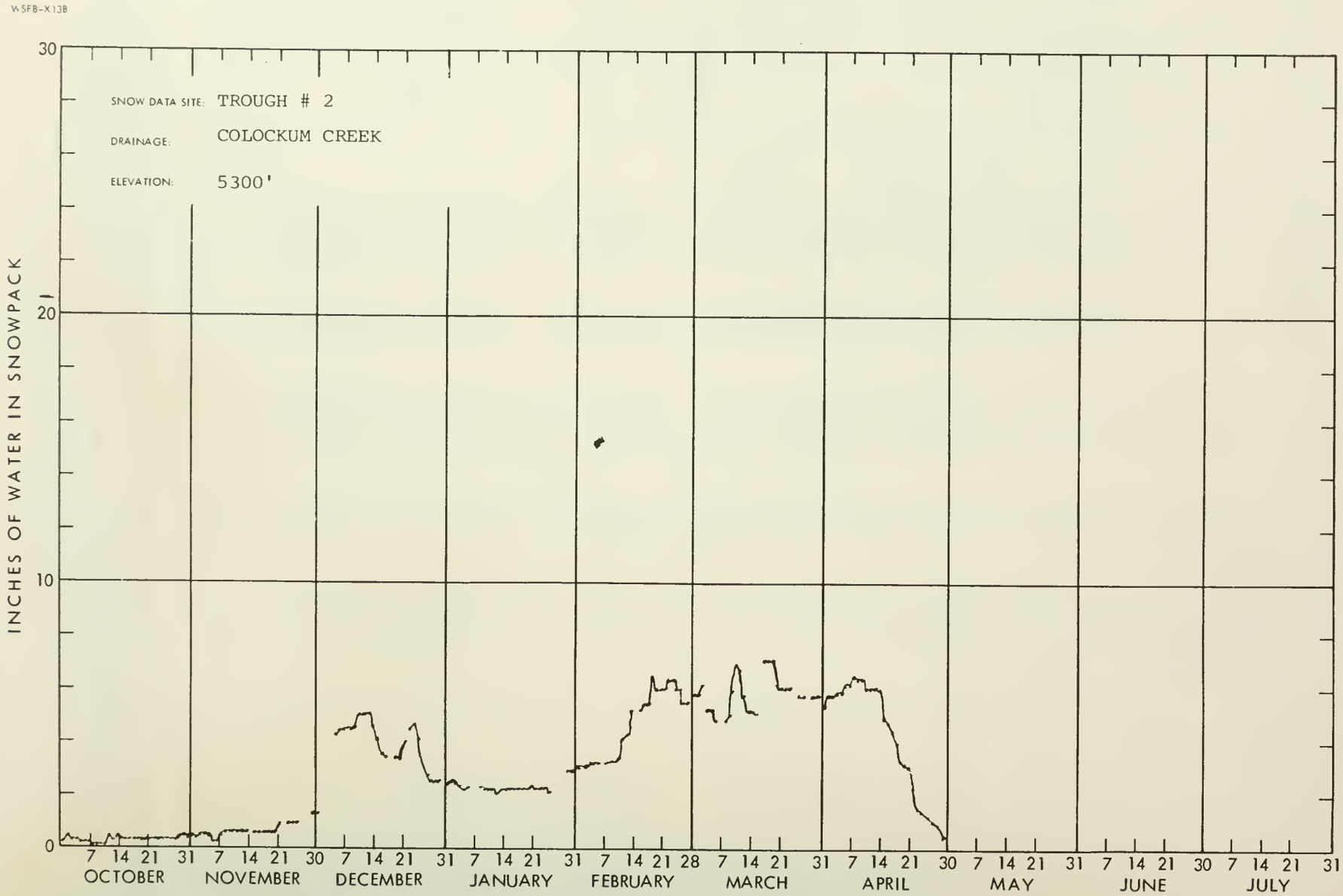
MARCH
7 14 21 30
APRIL
7 14 21 31
MAY
7 14 21 30
JUNE
7 14 21 31
JULY


WSFB-X13B
INCHES OF WATER IN SNOWPACK
SNOW DATA SITE: CORRAL PASS
DRAINAGE: WHITE RIVER
ELEVATION: 6000'
30
20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY


WSFB-X138
SNOW DATA SITE: LONE PINE SHELTER
DRAINAGE: LEWIS RIVER
ELEVATION: 3840'
INCHES OF WATER IN SNOWPACK
30
20
10
0
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY

WSFB-X13B


SNOW DATA SITE: PARK CREEK RIDGE
DRAINAGE: CHELAN LAKE
ELEVATION: 4600'
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY


W-SFB-X13B
SNOW DATA SITE: TROUGH # 2
DRAINAGE: COLOCKUM CREEK
ELEVATION: 5300'
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY

SNOW DATA TO MAY 1, 1981 - APPENDIX 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
U P P E R C O L U M B I A D R A I N A G E								
PEND OREILLE RIVER								
Baree Creek	15B11	5500	4/30	60	26.6	27.3	18.6	49.5
Baree Midway	15B16	4600	4/30	29	12.2	18.7	11.7	35.1
Baree Trail	15B15	3800	4/30	0	0.0	0.0	0.0	1.8
Benton Spring	16A03	4900	4/29	16	6.5	4.0	0.0	16.7
Boyer Mountain	17A02	5250	4/27	39	14.4	17.2	2.1	25.2
Brush Creek Timber	14A13	5000	4/30	0	0.0	0.0	0.0	8.1
Bunchgrass Meadow	17A01	5000	4/28	59	18.8	18.5	6.5	30.0
Heart Lake Trail	14C10	4800	5/4	0	0.0	11.4	3.3	19.1
Hoodoo Basin	15C10	6000	5/4	77	33.4	44.0	20.6	55.6
Hoodoo Creek	15C01	5900	5/4	68	30.1	39.8	18.4	52.0
Lookout	15B02	5250	4/15	65	21.2	29.2	15.3	38.6
			4/29	37	14.2	17.4	8.3	35.4
Mosquito Ridge	16A04A	5100	4/30	50	18.6	-	4.3	-
Nelson	2D04-Can	3050	5/1	1.6	0.7	2.0	1.5	7.0*
Schweitzer Ridge	16A05	6100	5/1	66	30.4	42.8	14.5	47.5
Smith Creek	16A01	4800	4/29	79	36.8	32.5	15.2	47.4
Winchester Creek	17A03	2970	4/27	0	0.0	0.0	0.0	1.9
KETTLE RIVER								
Barnes Creek	2B06-Can	5300	5/1	43	16.5	8.3	14.0	20.7*
Big White Mtn.	2E03-Can	5500	5/2	46	18.1	12.4	10.3	21.1*
Bluejoint Mtn.	2E06-Can	7500	5/1	62	26.0	20.7	11.3	28.7*
Boulder Road	18A02	1450	4/28	0	0.0	0.0	0.0	0.0
Butte Creek	18A03	4070	4/28	5.8	1.7	3.0	0.0	6.0
Cabin Creek	18A08	3170	4/28	0	0.0	0.0	0.0	1.8
Carmi	2E02-Can	4100	5/2	0	0.0	0.0	0.0	2.0*
Farron # 1	2B02-Can	4000	4/30	15	5.9	5.7	1.2	8.4*
Farron # 2	2B02A-Can	4000	4/30	21	8.4	6.1	0.9	9.2*
Goat Creek	18A04	3595	4/28	0	0.0	0.0	0.0	0.0
Graystoke Lake	2F04-Can	5950	4/30	28	10.2	7.8	10.0	20.3*
Monashee Pass	2E01-Can	4500	5/1	25	9.7	2.6	8.0	12.8*
Old Glory Mountain	2B03-Can	7000	5/2	61	24.7	26.8	5.5	30.5*
Snow Caps Creek	18A05	2150	4/28	0	0.0	0.0	0.0	0.0
Snow Caps Trail	18A06	2720	4/28	0	0.0	0.0	0.0	0.0
Summit G. S.	18A07	4600	4/28	4	1.4	0.6	0.0	6.3
Trapping Creek Upper	2E04-Can	4450	5/2	5.5	1.8	0.0	0.0	6.1*

\# Average based on 1963-77 average
* Average for years of record

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO MAY 1, 1981 - APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (inches)	Water Content (inches)	Last Year	1977	Avg. #
SPOKANE RIVER								
Above Burke	15B08	6100	4/29	14	4.6	6.3	4.7	19.7
Copper Ridge	16B02	4800	4/30	0	0.0	-	0.0	25.7
Forty-nine Meadows	15B03	5000	4/29	20	7.1	7.2	4.0	26.9
Granite Peak	15B13A	6000	4/29	66	23.1	28.5	15.5	47.6
Kellogg Peak +	16B05A	5560	4/30	0	0.0	-	0.0	-
Lookout	15B02	5250	4/15	65	21.2	29.2	15.3	38.6
			4/29	37	14.2	17.4	8.3	35.4
Lost Lake	15B14A	6000	4/29	82	31.4	34.7	19.3	62.5
Lower Sands Creek	16B01	3400	4/29	0	0.0	6.4	7.3	18.3
Mosquito Ridge +	16A04A	5110	4/30	50	18.6	-	4.3	-
Roland Summit +	15B05A	5200	4/30	6	2.3	-	0.0	-
Sherwin	16C01	3200	4/30	0	0.0	0.0	-	7.2
Sunset +	15B09A	5600	4/30	58	22.3	-	6.5	-
OKANOGAN RIVER								
Aberdeen Lake	1F01A-Can	4300	4/29	0	0.0	0.0	0.0	1.7*
Blackwall Mountain	2G03-Can	6250	4/28	65	26.9	25.0	17.4	37.8*
Bouleau Lake	2F21-Can	4580	4/26	34	11.1	6.5	5.7	13.1*
Brenda Mine	2F18-Can	4800	4/28	25	7.7	3.1	0.0	9.9*
Brookmere	1C01-Can	3200	5/1	1.6	0.8	2.7	1.2	5.6*
Enderby	1F04-Can	6250	4/30	99	42.5	31.9	29.9	42.3*
Esperon Creek Lower	2F15-Can	4400	4/26	21	6.1	2.4	0.0	9.3*
Esperon Creek Middle	2F14-Can	4700	4/26	26	8.5	4.3	0.0	12.6*
Esperon Creek Upper	2F13-Can	5400	4/26	33	11.2	8.8	4.7	18.5*
Freezeout Meadow New	20A38	5000	4/30	44	18.0	19.2	14.4	40.3
Grayback Res.	2F08-Can	5225	4/29	23	6.8	1.9	1.4	8.0*
Graystoke Lake	2F04-Can	5950	4/30	28	10.2	7.8	10.0	20.3*
Hamilton Hill	2G06-Can	4900	4/28	20	6.3	19.0	4.6	13.2*
Harts Pass	20A05A	6500	4/29	80	32.9	36.2	21.8	51.5
Isintok Lake	2F11-Can	5510	4/25	7.5	2.8	2.7	0.0	7.1*
Lightning Lake	3D02-Can	4500	4/29	11	3.9	7.9	4.1	11.5*
Lost Horse Mountain	2G04-Can	6300	5/1	16	5.2	5.0	3.8	10.5*
Loup Loup	19A07	4650	4/29	0	0.0	0.6	0.0	6.1
McCulloch	2F03-Can	4200	4/25	9.4	3.3	0.0	0.0	2.7*
Missezula Mountain	2G05-Can	5100	4/27	11	3.9	5.9	0.0	6.0*
Mission Creek	2F05-Can	6000	4/30	77	18.0	11.9	14.7	21.7*
Monashee Pass	2E01-Can	4500	5/1	25	9.7	2.2	8.0	12.8*
Mount Kobau	2F12-Can	5950	4/26	31	10.4	8.2	2.1	12.8*
Mutton Creek No. 1	19A01	5700	4/28	11	4.5	6.1	0.0	11.3
Mutton Creek No. 2SP	19A11SP	6000	4/28	-	5.6	6.6	0.0	13.9
Nickel Plate Mtn.	2G02-Can	6200	4/30	9.1	1.3	4.2	2.6	8.1*
Oyama Lake	2F19-Can	4400	4/29	0	0.0	0.0	0.0	3.1*
Postill Lake	2F07-Can	4500	4/30	17	5.4	0.5	2.7	6.6*

\# Average based on 1963-77 average
* Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS-PORTLAND OREGON 1973

SNOW DATA TO MAY 1, 1981 - APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
Rusty Creek	19A03	4000	4/28	0	0.0	0.0	0.0	0.8
Salmon Meadows	19A02	4500	4/28	5.2	2.4	4.0	0.0	6.2
Silver Star Mountain	2F10-Can	6050	5/2	55	22.0	20.2	14.6	28.3*
Summerland Reservoir	2F02-Can	4200	4/25	11	3.1	3.4	0.0	6.8*
Sunday Summit	2G01A-Can	4300	4/29	0	0.0	0.0	0.0	1.1*
Trout Creek	2F01-Can	4700	4/27	2.4	0.8	0.0	0.2	5.2*
Vaseux Creek	2F20-Can	4600	4/30	4	1.9	0.0	0.0	2.5*
White Rocks Mountain	2F09-Can	6000	4/29	37	13.6	9.6	6.9	24.8*
METHOW RIVER								
Harts Pass	20A05A	6500	4/29	80	32.9	36.2	21.8	51.5
Loup Loup	19A07	4650	4/29	0	0.0	-	0.0	6.1
Mutton Creek No. 1	19A01	5700	4/28	11	4.5	6.1	0.0	11.3
Mutton Creek No. 2 SP	19A11SP	6000	4/28	-	5.6	6.6	0.0	13.9
Rusty Creek	19A03	4000	4/28	0	0.0	0.0	0.0	0.8
Salmon Meadows	19A02	4500	4/28	5.2	2.4	4.0	0.0	6.2
CHELAN LAKE BASIN								
Rainy Pass	20A09	4780	4/29	65	30.0	27.6	21.8	47.5
ENTIAT RIVER								
Blue Creek G. S.	20B28a	5425	4/27	72	29.5	25.5	11.9	39.9
Brief	20B19	1600	4/25	0	0.0	0.0	0.0	0.0
Entiat Meadows +	20A33a	4540	4/27	54	22.1	32.3	9.9	35.7
Entiat River Trail +	20A34a	3325	4/27	0	0.0	-	0.0	3.0
Four Mile Ridge +	20B27a	6800	4/27	48	19.7	26.4	4.0	38.5
Fox Camp +	20A36a	6510	4/27	38	15.6	58.9	19.5	64.1
Pope Ridge	20B20	3540	4/29	0	0.0	7.6	0.0	9.8
Pugh Ridge +	20A32a	6725	4/27	61	25.0	26.8	11.2	30.8
Shady Pass	20A37	6200	4/29	39	16.0	23.0	2.2	31.6
Snow Brushy +	20A35a	3910	4/27	45	18.4	8.8	6.9	29.4
Tommy Creek +	20B21a	4900	4/27	28	11.5	7.0	0.0	21.7
WENATCHEE RIVER								
Berne-Mill Creek	21B23	2925	4/29	19	7.7	14.2	6.0	23.9
Berne-Mill Creek New	21B41SP	3240	4/29	0	0.0	9.9	0.0	19.8
Blewett Pass No. 2	20B02	4270	4/13	16	4.8	11.2	2.2	15.3
			4/28	0	0.0	4.6	0.0	10.8
Stevens Pass	21B01	4070	4/14	66	22.8	44.5	25.6	56.3
			4/29	41	18.2	39.7	22.9	57.5
Stevens Pass Sand Shed	21B45	3700	4/14	37	12.3	29.6	12.2	38.0
			4/29	11	4.7	20.4	7.6	37.3

\# Average based on 1963-77 average
* Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO MAY 1, 1981 - APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
SQUILCHUCK CREEK								
Beehive Springs	20B03	4400	4/28	0	0.0	0.0	0.0	2.2
Scout-A-Vista	20B04	3400	4/28	0	0.0	0.0	0.0	0.3
STEMILT CREEK								
Jump-Off	20B08	4450	4/29	0	0.0	0.0	0.0	3.3
Stemilt Slide	20B06	5000	4/28	0	0.0	2.4	0.0	7.8
Upper Wheeler	20B07	4400	4/28	0	0.0	0.0	0.0	1.3
COLOCKUM CREEK								
Colockum Creek Upper	20B22	5300	4/29	0	0.0	0.0	0.0	10.8
Colockum Creek Lower	20B23	4300	4/29	0	0.0	0.0	0.0	2.8
Trough # 2	20B25SP	5310	4/29	0	0.0	7.5	0.0	New
YAKIMA RIVER								
Big Boulder Creek	21B09	3200	4/14	10	1.3	-	-	-
			4/30	0	0.0	0.0	0.0	10.9
Blewett Pass No. 2	20B02	4270	4/13	16	4.8	11.2	2.2	15.3
			4/28	0	0.0	4.6	0.0	10.8
Bumping Lake	21C08	3450	4/13	5.4	0.5	18.0	0.0	13.8
			5/1	0	0.0	6.7	0.0	10.2
Bumping Lake New	21C36	3400	4/13	7.6	1.6	20.0	0.0	19.6
			5/1	0	0.0	10.5	0.0	15.2
Cayuse Pass	21C06	5300		Late Report		65.0	43.4	98.1
Corral Pass	21B13	6000	4/27	52	22.2	28.0	15.6	42.6
Fish Lake	21B04	3371	4/14	27	9.8	-	-	-
			5/1	Not Measured		15.6	2.0	28.0
Green Lake	21C10	6000	4/10	52	19.0	-	-	-
			4/29	34	17.1	-	-	-
Joe Lake +	21B46a	4624	4/15	132	47.3	-	-	-
			4/30	87	39.2	56.2	40.0	67.0
Lake Cle Elum	21B14M	2200	4/13	Trace	0.0	-	-	-
Lemah Creek +	21B47a	3327	4/15	54	19.3	-	-	-
			4/30	0	0.0	21.6	14.0	40.3
Morse Lake	21C17	5400	4/14	105	37.5	-	-	-
			4/28	74	32.4	48.5	18.0	61.9
Olallie Meadows	21B02	3625	4/14	62	16.2	35.2	20.2	55.1
			4/27	27	12.3	26.6	15.9	53.4
Satus Pass	20D01	4030	5/4	0	0.0	-	-	-
Stampede Pass SP	21B10	3860	4/16	50	14.5	42.4	12.0	42.9
			4/23	35	16.7	27.8	6.9	43.4
Tunnel Avenue	21B08	2450	4/13	12	3.3	16.6	0.0	23.9
			5/1	0	0.0	5.4	0.0	17.5
Van Epps Pass +	20B26a	5925	4/15	94	33.6	-	-	-
			4/30	62	27.9	48.5	21.8	56.1

\# Average based on 1963-77 average
\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS-PORTLAND OREGON 1973

SNOW DATA TO MAY 1, 1981 - APPENDIX 5

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
YAKIMA RIVER (Cont.)								
Waptus Lake +	21B49a	3024	4/15	53	19.0	-	-	-
			4/30	0	0.0	21.6	12.9	38.9
White Pass (E. Side)	21C28	4500	4/13	33	7.5	25.6	6.3	26.9
			5/1	0	0.0	21.6	0.0	27.6
AHTANUM CREEK								
Green Lake	21C10	6000	4/10	52	19.0	-	-	-
			4/29	34	17.1	-	-	-
LOWER COLUMBIA DRAINAGES								
ASOTIN CREEK								
Spruce Springs	17C04	5700	4/27	22	8.2	14.7	1.8	24.8
MILL CREEK								
High Ridge	18D19	4150	4/30	28	11.9	11.9	-	27.0
KLICKITAT RIVER								
Satus Pass	20D01	4030	5/4	0	0.0	-	-	3.9
LEWIS RIVER								
Lone Pine Shelter	21C26	3800	5/1	SNOTEL	13.9	24.2	15.9	48.0
Marble Mountain	22C05	3200	5/1	SNOTEL	0.9	0.0	4.9	33.6
Plains of Abraham	22C01	4400	5/1	SNOTEL	4.6	41.0	32.9	77.4
Spencer Meadow	21C20	3400	5/1	SNOTEL	7.3	0.0	5.4	19.0
COWLITZ RIVER								
Cayuse Pass	21C06	5300		Late Report		65.0	43.4	98.1
White Pass (E. Side)	21C28	4500	4/13	33	7.5	25.6	6.3	26.9
			5/1	0	0.0	21.5	0.0	27.6
PUGET SOUND DRAINAGE								
WHITE RIVER								
Cayuse Pass	21C06	5300		Late Report		65.0	43.4	98.1
Corral Pass	21B13	6000	4/27	52	22.2	28.0	15.6	42.6
Morse Lake	21C17	5400	4/14	105	37.5	-	-	-
			4/28	74	32.4	48.5	18.0	61.9
GREEN RIVER								
Cougar Mountain SP	21B42SP	3200	4/27	0	0.0	0.0	-	20.7
Snowshoe Butte SP	21B43SP	5000	4/27	64	25.2	42.9	21.0	67.7
Stampede Pass SP	21B10	3860	4/16	50	14.5	42.4	12.0	42.9
			4/23	35	16.7	27.8	6.9	43.4

Average based on 1963-77 average

+ Snow water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO MAY 1, 1981 - APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
SNOQUALMIE RIVER								
Olallie Meadows	21B02	3625	4/14	62	16.2	35.2	20.2	55.1
			4/27	27	12.3	26.6	15.9	53.4
SKYKOMISH RIVER								
Stevens Pass	21B01	4070	4/14	66	22.8	44.5	25.6	56.3
			4/29	41	18.2	39.7	22.9	57.5
Stevens Pass Sand Shed	21B45	3700	4/14	37	12.3	29.6	12.2	38.0
			4/29	11	4.7	20.4	7.6	37.3
SKAGIT RIVER								
Beaver Creek Trail	21A04	2200	4/29	0	0.0	0.0	0.0	7.3
Beaver Pass	21A01	3680	4/29	13	6.3	19.2	6.6	34.5
Brown Top Ridge +	21A28a	6000	4/29	114	46.8	50.2	31.0	74.7
Devils Park	20A04	5900	4/29	82	34.4	34.6	22.1	50.4
Freezeout Creek Trail	20A01	3500	4/30	0	0.0	1.7	0.4	10.2
Freezeout Meadows New	20A38	5000	4/30	44	18.0	19.2	14.4	40.3
Granite Creek	21A29A	3500	4/29	4.4	1.7	2.9	2.4	18.2
Harts Pass	20A05A	6500	4/29	80	32.9	36.2	21.8	51.5
Klesilkwa	3D03A-Can	3700	4/29	0	0.0	0.0	0.0	7.2*
Lightning Lake	3D02-Can	4000	4/29	11	3.9	7.9	4.1	11.5*
Meadow Cabins	20A08	1900	4/29	0	0.0	0.0	0.0	1.9
New Hozomeen Lake	21A30	2800	4/30	0	0.0	0.0	0.0	10.5
New Tashme	3D01A-Can	2500	4/29	0	0.0	0.0	0.0	3.2*
Rainy Pass	20A09	4780	4/29	65	30.0	27.6	21.8	45.7
Thunder Basin	20A07	4200	4/29	19	7.8	10.0	10.5	26.2
BAKER RIVER								
Dock Butte	21A11A	3800	4/14	97	37.0	-	-	79.8
				Late Report		52.0	35.0	79.3
Easy Pass	21A07A	5200	4/14	159	60.0	-	-	92.1
				Late Report		63.0	42.2	97.6
Jasper Pass	21A06A	5400	4/14	183	70.0	-	-	100.8
				Late Report		71.0	48.9	99.8
Marten Lake	21A09A	3600	4/14	125	48.0	-	-	87.4
				Late Report		53.0	43.7	87.0
Mount Blum +	21A18a	5800	4/14	153	58.0	-	-	79.6
				Late Report		57.0	40.3	76.1
Panorama New	21A26	4300	4/11	101	31.8	-	36.3	79.6
			5/3	56	25.3	-	35.2	88.3
Rocky Creek	21A12A	2100	4/14	25	10.0	-	-	32.6
				Late Report		0.0	8.8	28.4
Schreibers Meadow	21A10A	3400	4/14	72	27.0	-	-	67.8
				Late Report		30.0	32.4	70.5

\# Average based on 1963-77 average
* Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO MAY 1, 1981 - APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
						Water Content (inches)		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
BAKER RIVER (Cont.)								
S. F. Thunder Creek	21A14A	2200	4/14	12	5.0	-	-	4.5
				Late Report		0.0	0.0	2.0
Watson Lakes	21A08A	4500	4/14	110	42	-	-	78.9
				Late Report		45.0	35.7	77.7
NOOKSACK RIVER								
Panorama New	21A26	4300	4/11	101	31.8	-	36.3	79.6
			5/3	56	25.3	51.0	35.2	88.3
OLYMPIC PENINSULA								
DUNGENESS RIVER								
Deer Park	23B04	5200	4/29	9	3.7	14.3	7.8	24.2
MORSE CREEK								
Cox Valley	23B14	4500	4/26	38	15.1	27.9	16.5	45.3
ELWHA RIVER								
Hurricane	23B03	4500	4/26	18	6.5	10.1	8.5	28.2

Average based on 1963-77 average

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Ministry of the Environment, Water Investigations Branch, Victoria, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
- Corps of Engineers

U. S. Department of Agriculture
- Forest Service

U. S. Department of Commerce
- NOAA, National Weather Service

U. S. Department of the Interior
- Bonneville Power Administration
- Bureau of Reclamation
- Geological Survey
- National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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United States
Department of
Agriculture

Soil
Conservation
Service

Spokane,
Washington

Water Supply Outlook for Washington

as of JUNE 1, 1981 . . .

in cooperation with

Department of Ecology
State of Washington

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TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SNOW SURVEYORS MAKING SPECIAL MEASUREMENTS OF THE SNOWPACK NEAR MT. ST. HELENS VOLCANO, WASHINGTON, APRIL, 1980.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4420 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U. S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W, Calgary, Alberta T3C 1A6.

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

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In Cooperation with

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SOIL CONSERVATION SERVICE
360 U.S. COURTHOUSE
SPOKANE, WASHINGTON 99201

WATER SUPPLY OUTLOOK

State of Washington

June 1, 1981

It seems like the last few years have had a huge deficiency of snow as of May 15 and June 1. The years 1979, 1980, and 1981 all had subnormal snowpacks late in the season; but, also they weren't exceptional earlier in the year either. We have managed to get by with our water supply - even 1977, which was very bad, and so we will probably get by again. We have not had good snowpacks throughout the Columbia basin all winter, but there were locations with above normal conditions in Montana and British Columbia. These areas were not large and there wern't too many of them, but they are significant to our water supply along the main stem of the Columbia. Forecasts of water supply are not prepared for any forecast points as of June 1; but if we did, we would probably increase, percentagewise, our forecasts. Rainfall was significantly above average over the basins here in the Northwest, and the runoff was mostly subnormal - the exception being the Columbia out of Canada and the Kettle. The Montana flooding which was in the news, was mostly in the Missouri drainage.

THIS IS THE LAST WATER SUPPLY OUTLOOK REPORT FOR 1981. IF YOU WISH TO RECEIVE THESE REPORTS NEXT YEAR, PLEASE RETURN THE BACK COVER OF THE APRIL 1 REPORT IF YOU HAVE NOT ALREADY DONE SO.

SNOW COVER

Very few snow courses had snow as of May 15 and even less on June 1. The ones that we have records on are all in the high country of Montana and British Columbia. On the Pend Oreille watershed, snow cover was 45 percent of average on May 15 and 46 percent as of June 1. The Kettle snowpack was 83 percent as of May 15 and 77 percent on June 1. The Okanogan drainage was 70 percent for each. Most of the other measurements that were reported as of June 1 were zero and, therefore, not comparable.

RESERVOIRS

The storage picture in the state continues to be the bright spot. All reservoirs are practically full, with well above normal amounts of water in storage. Flood control does not seem to be a problem this year so the multi purpose reservoirs will fill in the next week or two.

PRECIPITATION

During the month of May, rainfall was above normal for all drainage divisions reported by the National Weather Service for Washington and tributary areas. Percentagewise, rainfall ranged from 114 percent for the Southwest Slopes of the Cascades to 236 percent for the Okanogan in Canada. The April-May totals range from 118 percent for the Southwest Slopes to 162 percent for the Pend Oreille-Spokane division.

STREAMFLOW

Local runoff during the month of May was all subnormal. Only outflows from Canada were above average; although some of the flows from Montana were close. Washington runoff ranged from 50 percent of normal for the Klickitat River to 92 percent for the Chelan. Tributary and main stem flows were greater, ranging down from 127 percent of average for the Columbia at Birchbank. Forecasts of streamflow are not made as of June 1.

RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured June 1 1981	1980	1979	Normal*
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	213.7	242.5	236.2	225.0
Columbia	Franklin D. Roosevelt Lake	5232.0	4845.6	5058.7	3433.6	2565.6
Columbia	Banks Lake	714.9	672.2	680.2	456.6	406.2
Okanogan	Conconully Reservoir	13.0	13.2	13.0	10.5	9.1
Okanogan	Conconully Lake	10.5	10.4	10.5	8.1	9.4
Chelan	Lake Chelan	676.1	653.5	570.6	437.3	450.6
		YAKIMA				
Yakima	Keechelus Lake	157.8	147.4	147.1	157.6	139.6
Kachess	Kachess Lake	239.0	237.2	163.0	236.9	217.1
Cle Elum	Lake Cle Elum	436.9	436.4	436.2	338.0	367.9
Bumping	Bumping Lake	33.7	33.1	33.4	35.1	25.4
Tieton	Rimrock Lake	198.0	193.2	198.8	171.0	160.2
		PUGET SOUND				
Skagit	Ross Reservoir	1404.1	1362.1	1129.5	1107.7	1033.9
Skagit	Diablo Reservoir	90.6	86.7	85.1	87.2	86.1
Skagit	Gorge Reservoir	9.8	7.9	7.2	8.1	8.3

1/ Based on Active Storage

* 15-yr. Average 1963-1977

PRECIPITATION 1/

Division Average Observations and Departures

Drainage Divisions	FALL Sept-Oct 1980 Observed	FALL Sept-Oct 1980 2/ Departure	WINTER Nov 1980 - Mar 1981 Observed	WINTER Nov 1980 - Mar 1981 Departure	SPRING Apr-May 1981 Observed	SPRING Apr-May 1981 2/ Departure
Columbia in Canada	3.76	-1.26	14.49	-1.02	4.97	+1.50
Pend Oreille - Spokane	2.75	-1.29	15.12	-2.43	6.24	+2.39
Northeastern Washington	2.37	-0.11	8.49	-0.91	4.68	+1.67
Southeastern Washington	2.33	-0.18	11.21	+0.78	3.58	+0.65
Central Washington	1.60	+0.63	5.50	+0.22	1.89	+0.54
North Central Washington	1.45	-0.14	7.16	+0.62	1.70	+0.85
Northwest Slope Cascades	7.35	-5.86	52.10	-3.29	15.52	+5.12
Southwest Slope Cascades	3.89	-4.79	38.40	-3.24	8.63	+1.33

Northeastern Washington	- Lower Spokane, Colville, Sanpoil, and Lower Kettle Drainages.
Southeastern Washington	- Touchet, Tucannon, and Palouse Drainages.
Central Washington	- Yakima, Wenatchee, and Chelan Drainages.
North Central Washington	- Methow and Okanogan Drainages.
Northwest Slope Cascades	- Puget Sound Drainages.
Southwest Slope Cascades	- Lower Columbia Drainages.

1/ - Preliminary analysis by National Weather Service from data furnished by Meteorlogical Services of Canada and the National Weather Service.

2/ Departure from 15-year (1958-72) drainage division average.

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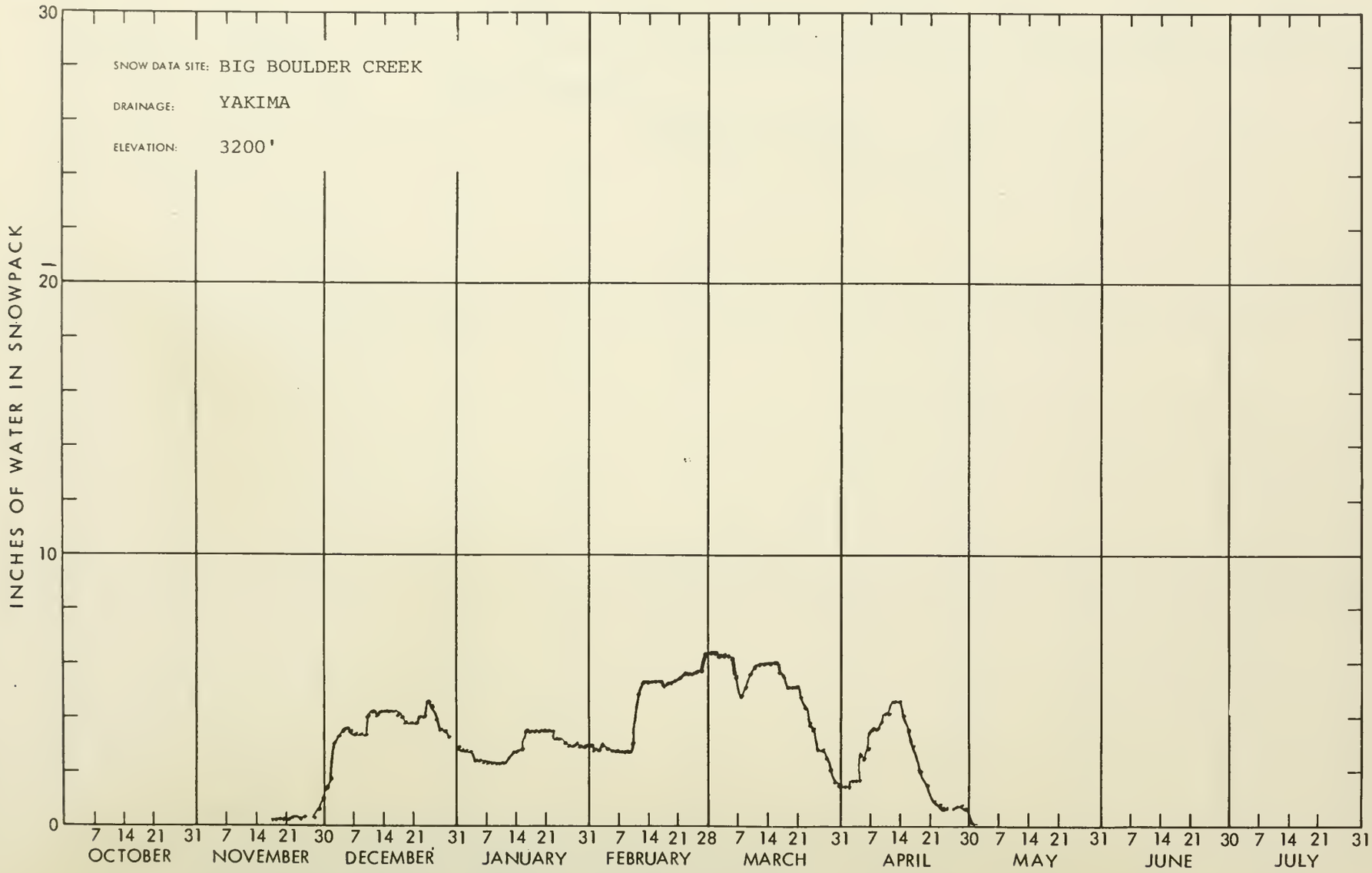
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DRAINAGE: YAKIMA
ELEVATION: 3200'
INCHES OF WATER IN SNOWPACK
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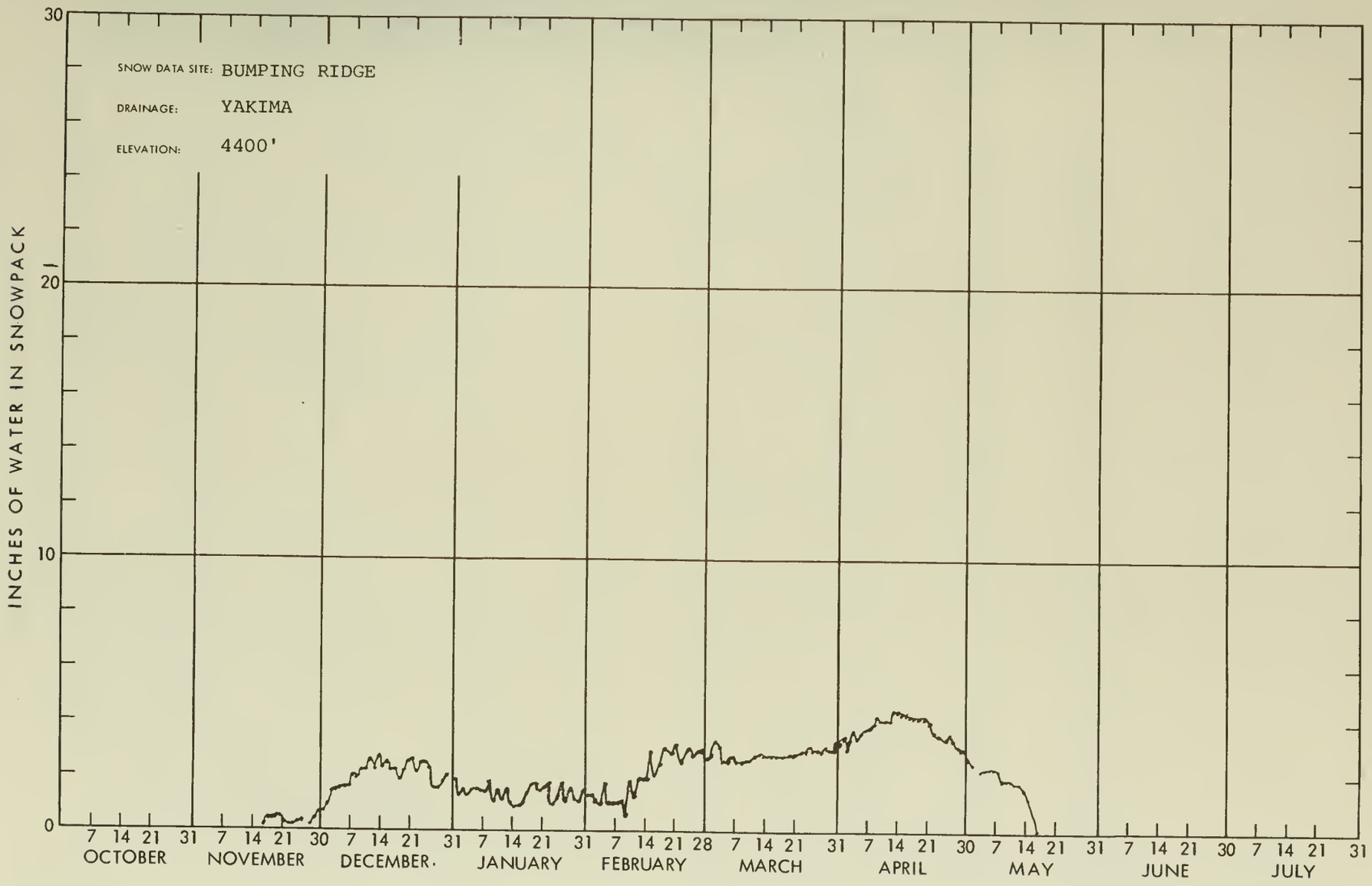
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DRAINAGE: YAKIMA
ELEVATION: 4400'
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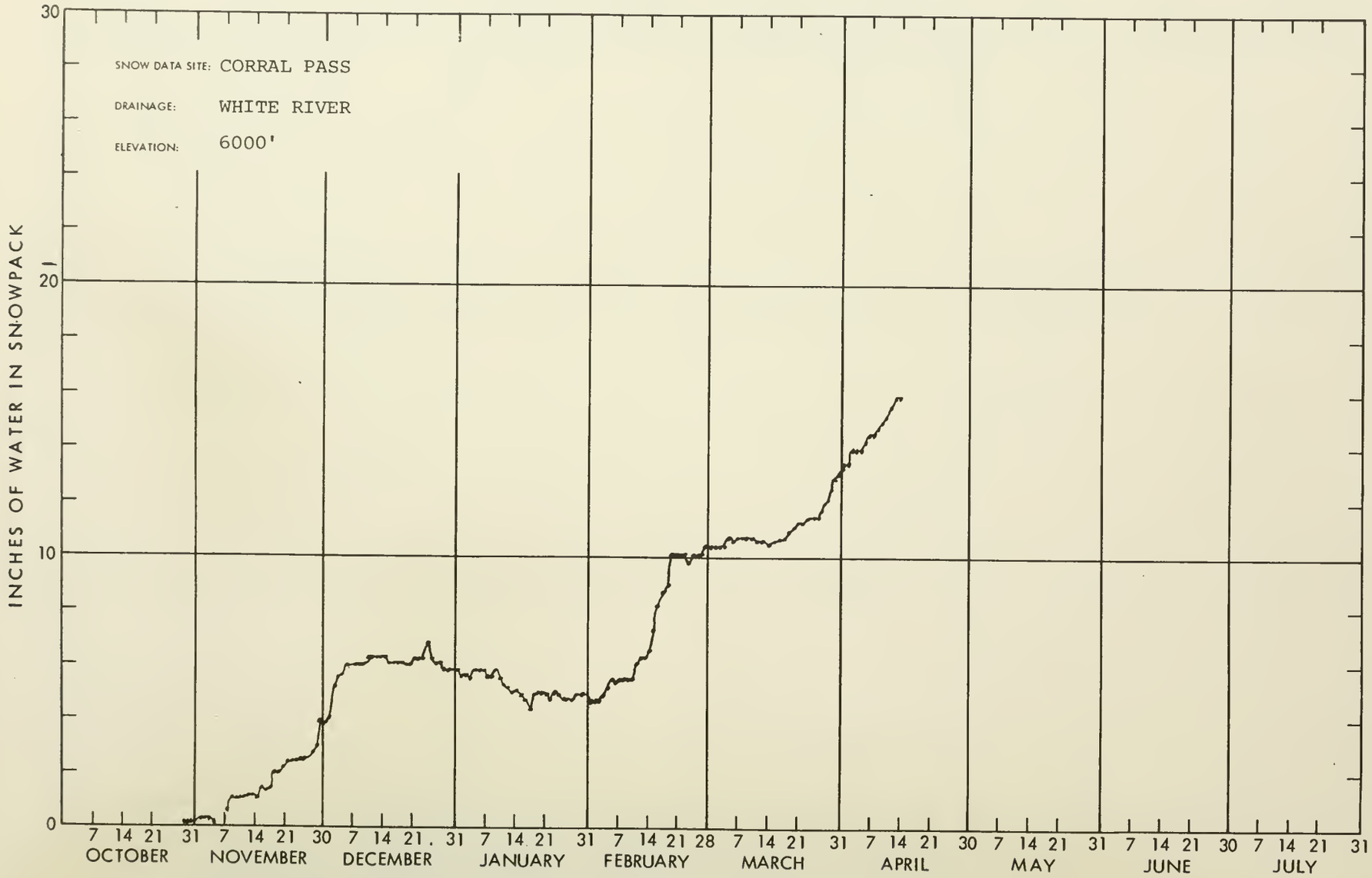
SNOW DATA SITE: CORRAL PASS
DRAINAGE: WHITE RIVER
ELEVATION: 6000'
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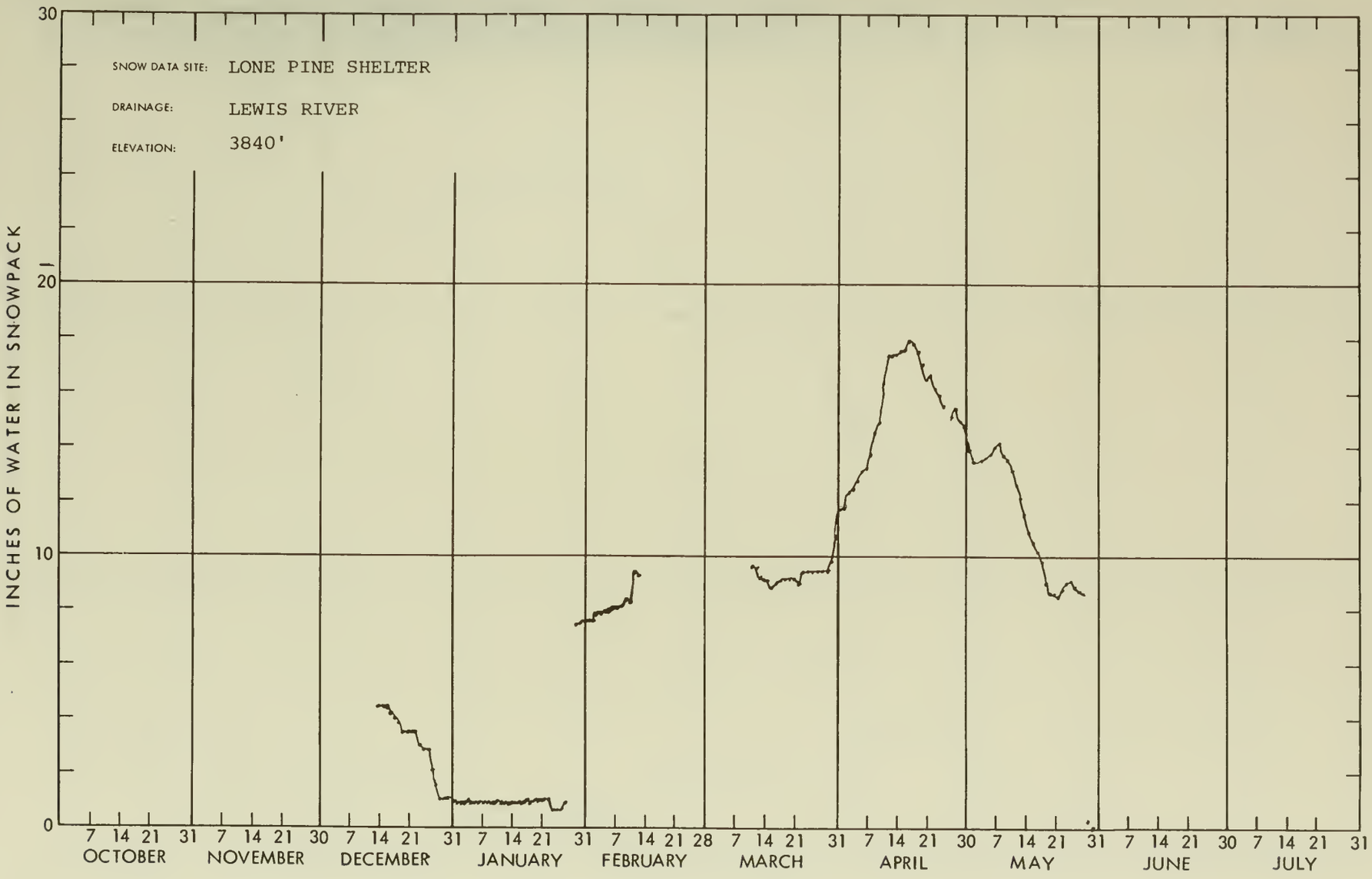
SNOW DATA SITE: LONE PINE SHELTER
DRAINAGE: LEWIS RIVER
ELEVATION: 3840'
INCHES OF WATER IN SNOWPACK
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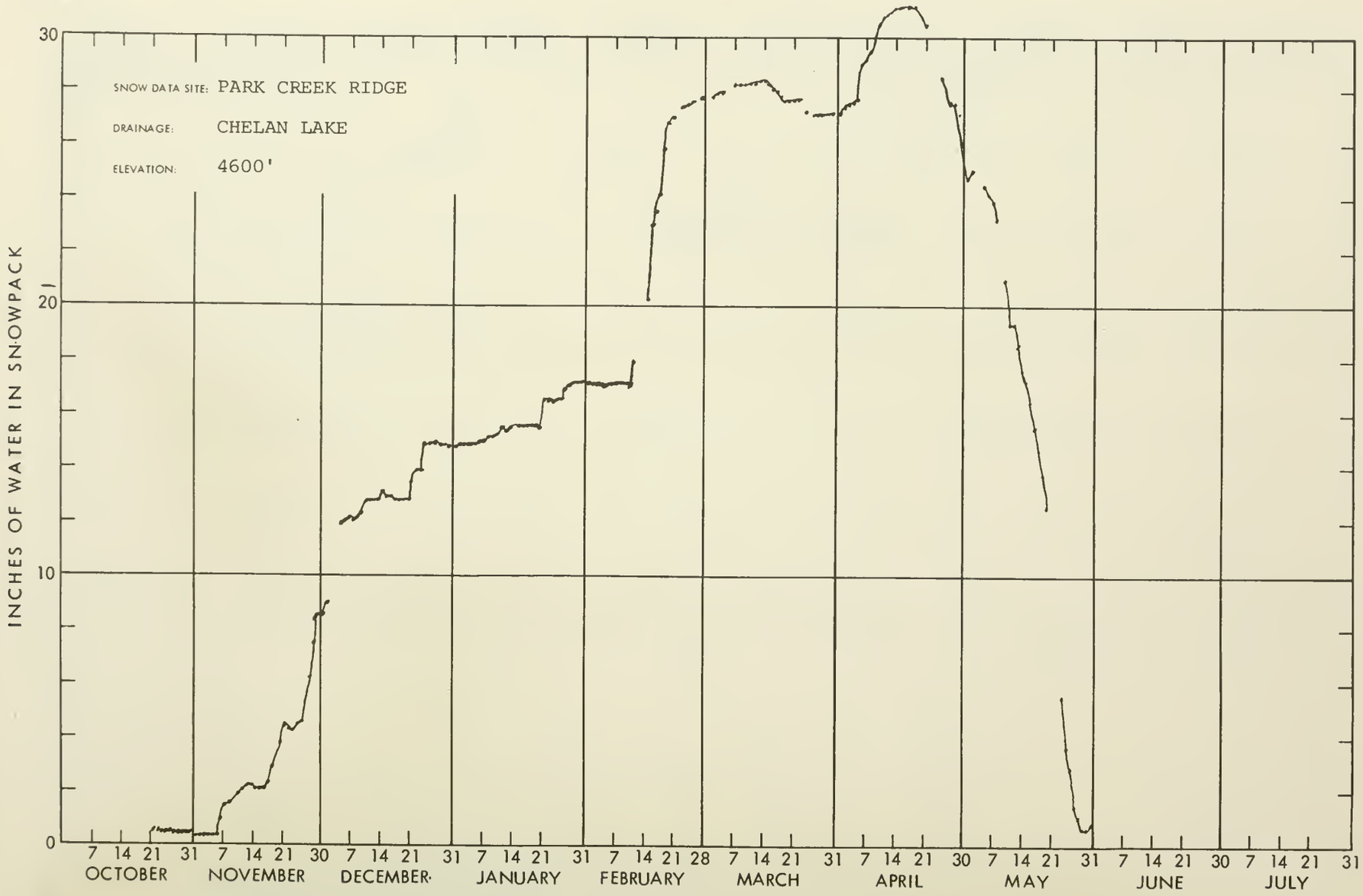
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DRAINAGE: CHELAN LAKE
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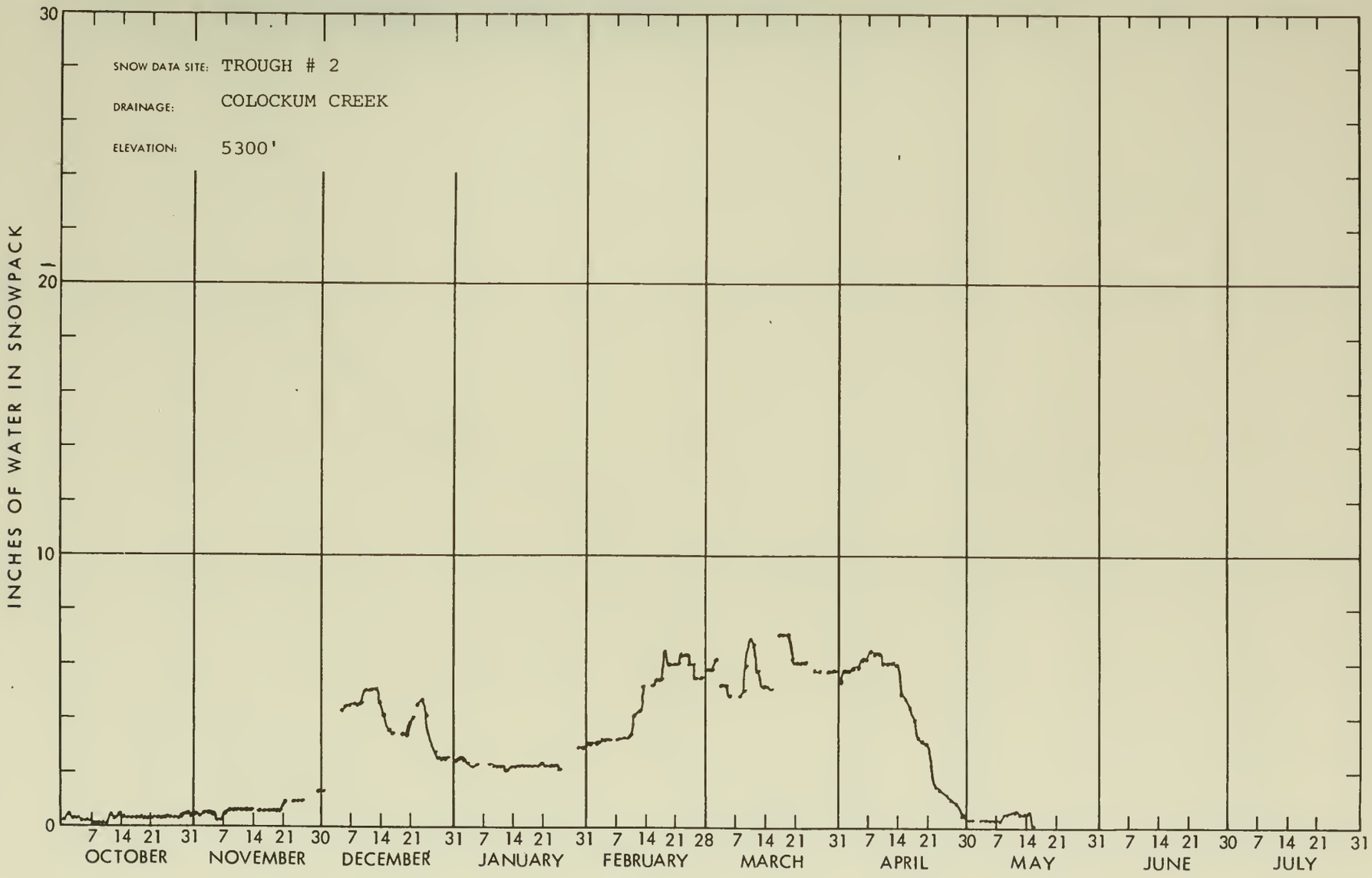
SNOW DATA SITE: TROUGH # 2
DRAINAGE: COLOCKUM CREEK
ELEVATION: 5300'
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SNOW DATA TO JUNE 1, 1981 - APPENDIX I

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches) Last Year	Average #
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Baree Creek	15B11	5500	5/13	42	20.0	13.0	41.5
Baree Midway	15B16	4600	5/13	14	5.5	2.9	25.0
Baree Trail	15B15	3800	5/13	0	0.0	0.0	0.0
Heart Lake Trail	14C10	4800	5/17	0	0.0	-	10.2
			6/1	0	0.0	0.0	-
Hoodoo Basin	15C10	6000	5/17	67	33.6	30.0	50.5
			6/1	35	17.6	24.5	39.0
Hoodoo Creek	15C01	5900	5/17	61	28.7	28.0	46.2
			6/1	33	16.9	23.2	36.5
Lookout	15B02	5250	5/13	20	8.6	2.4	30.9
			5/29	0	0.0	0.0	15.0
Nelson	2D04-Can	3050	5/15	0	0.0	0.0	1.0*
Schweitzer Ridge	16A05	6100	5/29	26	13.2	5.4	-
KETTLE RIVER							
Big White Mtn.	2E03-Can	5500	5/18	44	18.1	0.0	16.9*
			5/31	19	7.6	0.0	9.9*
Graystoke Lake	2F04-Can	5950	5/15	29	10.2	-	21.3*
Monashee Pass	2E01-Can	4500	5/14	18	8.1	0.0	8.5*
			5/29	0	0.0	-	1.9*
SPOKANE RIVER							
Granite Peak	15B13A	6000	5/29	25	9.4	-	31.5
Lookout	15B02	5250	5/13	20	8.6	2.4	30.9
			5/29	0	0.0	0.0	15.0
Lost Lake	15B14A	6000	5/29	38	16.2	-	46.4
OKANOGAN RIVER							
Blackwall Mountain	2G03-Can	6250	5/15	61	24.8	18.9	35.2*
			5/28	40	18.6	14.1	27.4*
Brenda Mine	2F18-Can	4800	5/14	3.1	0.9	0.0	1.9*
Brookmere	1C01-Can	3200	5/15	0	0.0	0.0	1.8*
Enderby	1F04-Can	6250	5/14	92	41.7	26.1	43.1*
			5/28	67	33.0	17.5	38.9*
Grayback Res.	2F08-Can	5225	5/14	15	4.3	0.0	4.9*
			5/29	0	0.0	-	0.9*
Graystoke Lake	2F04-Can	5950	5/15	29	10.2	-	21.3*
Hamilton Hill	2G06-Can	4900	5/13	4.3	1.6	0.0	6.1*
Isintok Lake	2F11-Can	5510	5/13	0	0.0	0.0	4.4*
Lost Horse Mountain	2G04-Can	6300	6/1	0	0.0	-	4.1*

Average based on 1963-1977 period

* Average for years of record

USDA SCS PORTLAND OREGON 1973.

SNOW DATA TO JUNE 1, 1981 - APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average #
OKANOGAN RIVER (Cont.)							
McCulloch	2F03-Can	4200	5/13	0	0.0	0.0	0.5*
Missezula Mountain	2G05-Can	5100	5/14	0	0.0	0.0	2.4*
Mission Creek	2F05-Can	6000	5/15	45	16.5	3.4	19.0*
			5/29	24	10.0	0.0	12.2*
Monashee Pass	2E01-Can	4500	5/14	18	8.1	0.0	8.5*
			5/29	0	0.0	-	1.9*
Mount Kobau	2F12-Can	5950	5/12	23	9.3	1.5	9.3*
			5/31	0	0.0	0.0	3.9*
Silver Star Mountain	2F10-Can	6050	5/16	54	21.7	3.9	25.4*
			5/31	18	7.0	0.0	16.3*
Summerland Reservoir	2F02-Can	4200	5/13	0	0.0	0.0	2.1*
Trout Creek	2F01-Can	4700	5/15	3.5	0.5	0.0	1.7*
Vaseux Creek	2F20-Can	4600	5/14	0	0.0	0.0	0.2*
White Rocks Mountain	2F09-Can	6000	5/13	28	11.7	0.0	17.7*
			6/1	0	0.0	-	11.3*
WENATCHEE RIVER							
Stevens Pass	21B01	4070	5/14	25	11.2	25.2	48.8
			5/29	0	0.0	16.5	40.6
Stevens Pass Sand Shed	21B45	3700	5/14	0	0.0	1.5	25.4
			5/29	0	0.0	0.0	18.7
YAKIMA RIVER							
Stampede Pass SP	21B10	3860	5/18	4.1	2.0	4.7	41.7
L O W E R C O L U M B I A D R A I N A G E							
LEWIS RIVER							
Lone Pine Shelter	21C26	3800	5/15		10.9	SNOTEL	-
			6/1		0.0	SNOTEL	-
Marble Mountain	22C05	3200	5/15		0.0	SNOTEL	-
			6/1		0.0	SNOTEL	-
Plains of Abraham	22C01	4400	5/15		2.3	SNOTEL	-
			6/1		0.0	SNOTEL	-
COWLITZ RIVER							
Ryan Lake	22C08	3280	5/14		6.1	SNOTEL	-
			5/29		2.2	SNOTEL	-
Sheep Canyon	22C10	4920	5/15		3.5	SNOTEL	-
			6/1		0.0	SNOTEL	-

\# Average based on 1963-77 period
* Average for years of record

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO JUNE 1, 1981 - APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average #
PUGET SOUND DRAINAGE							
SKYKOMISH RIVER							
Stevens Pass	21B01	4070	5/14	25	11.2	25.2	48.8
			5/29	0	0.0	16.5	40.6
Stevens Pass Sand Shed	21B45	3700	5/14	0	0.0	1.5	25.4
			5/29	0	0.0	0.0	18.7
GREEN RIVER							
Stampede Pass SP	21B10	3860	5/18	4.1	2.0	4.7	41.7
BAKER RIVER							
Dock Butte	21A11A	3800	4/30	49	22.0	52.0	79.3
			6/1	Late Report		-	57.2
Easy Pass	21A07A	5200	4/30	101	45.0	63.0	97.6
			6/1	Late Report		-	75.8
Jasper Pass	21A06A	5400	4/30	123	55.0	71.0	99.8
			6/1	Late Report		-	85.6
Marten Lake	21A09A	3600	4/30	73	33.0	53.0	87.0
			6/1	Late Report		-	68.9
Mount Blum +	21A18a	5800	4/30	Not Measured		57.0	76.1
			6/1	Late Report		-	72.1
Panorama New	21A26	4300	5/29	0	0.0	-	74.2
Rocky Creek	21A12A	2100	4/30	0	0.0	0.0	28.4
			6/1	Late Report		-	2.2
Schreibers Meadow	21A10A	3400	4/30	26	12.0	30.0	70.5
			6/1	Late Report			46.3
S. F. Thunder Creek	21A14A	2200	4/30	Not Measured		0.0	2.0
Watson Lakes	21A08A	4500	4/30	52	23.0	45.0	77.7
			6/1	Late Report		-	62.6
NOOKSACK RIVER							
Panorama New	21A26	4300	5/29	0	0.0	-	74.2

Average based on 1963-1977 period
+ Snow water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO JUNE 1, 1981 - APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average #

CORRECTIONS AND ADDITIONS - 1981 SNOW REPORTS

February 1

OKANOGAN & METHOW RIVERS

Mutton Creek No. 2 SP	19A11	6000	1/28	-	1.4	5.7	New

April 1

SPOKANE RIVER

Forty Nine Meadows	15B03	5000	4/8	48	16.2	19.7	32.5
Granite Peak	15B13A	6000	4/8	92	22.1	33.8	46.8
Lost Lake	15B14A	6000	4/8	113	34.3	40.3	61.8

SKAGIT RIVER

Thunder Basin	20A07	4200	3/28	18	5.2	13.4	24.7

USDA SCS PORTLAND OREGON 1973

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Ministry of the Environment, Water Investigations Branch, Victoria, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
- Corps of Engineers

U. S. Department of Agriculture
- Forest Service

U. S. Department of Commerce
- NOAA, National Weather Service

U. S. Department of the Interior
- Bonneville Power Administration
- Bureau of Reclamation
- Geological Survey
- National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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